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PART I.

ORIGINAL COMMUNICATIONS.

ART. IX.—*On Spontaneous Varicose Aneurism.* By ROBERT MAYNE, A. B., M. B., Lecturer on the Practice of Physic at the Carmichael School of Medicine, and Physician to the Hospitals of the South Dublin Union.

THE abnormal communication between an artery and its accompanying vein, which sometimes results from a wound of these vessels, was first brought under the notice of the profession, very nearly a century ago, by Dr. William Hunter, to whom must also be conceded the merit of having accurately described the symptoms by which this affection may be recognised, as well as the principles upon which its treatment ought to be conducted.

In cases of this description the communication between the artery and the vein is sometimes direct and immediate, constituting what is called an aneurismal varix, or, it may be, that there is a sac or pouch interposed and forming the medium of communication between the vessels: this latter variety is usually called a varicose aneurism.

Since the date of Dr. Hunter's papers, published in the Medical Observations and Inquiries, many able writers, such as Cleghorn, White, Larry, Hodgson, Dupuytren, and Breschet,

have described these affections; and therefore, *traumatic* varicose aneurism, and *traumatic* aneurismal varix, are now so well known that any further observations on them in the present day might well be considered superfluous. In later years it has, however, been discovered, that an abnormal communication may be established between an artery and its accompanying vein, *as a consequence of disease, without the intervention of any wound whatever*, and as the clinical history of cases of this description is as yet imperfect, I am induced to make known the details of one which lately came under my observation.

When an abnormal communication occurs between an artery and its accompanying vein *as the result of disease*, the *primary* mischief is almost constantly situated in the artery, and consists of some one of the many varieties of aneurism or aneurismal dilatation; the tumour thus formed by the artery in its progress contracts adhesion to the vein, and in process of time the partition intervening between the arterial and the venous blood giving way, the arterial current gains ingress into the vein. *Spontaneous* varicose aneurism is the term in general use to designate cases of this description: it differs essentially from the *traumatic* varicose aneurism, in being the result of disease and not of a wound. It seldom or never happens that the primary mischief is seated in the vein, because the coats of veins are much less prone to disease than those of arteries, and besides, arteries possess uncommon powers of resistance to ulceration from without.

In the year 1831 Mr. Syme published, in the thirty-sixth volume of the Edinburgh Medical and Surgical Journal, the particulars of a case in which an aneurism of the abdominal aorta communicated by an aperture, somewhat larger than a sixpence, with the inferior vena cava. This, which would appear to have been the earliest case on record of a spontaneous communication between an artery and its accompanying vein, was followed by a report of others in Edinburgh, London, and Dublin.

The readers of the Dublin Journal of Medical Science will call to mind a case related by Mr. Adams, in the eighteenth volume of the first series[a], amongst the Proceedings of the Pathological Society, in which a true aneurism of the common iliac artery opened into the common iliac vein.

Dr. Law, Professor of the Institutes of Medicine in the School of Physic in Ireland, has also recorded, in the twenty-first volume of the first series of this Journal[b], a highly in-

[a] Page 166. [b] Page 443.

teresting case, in which an aortic aneurism formed a communication with the superior vena cava.

In the Cyclopædia of Anatomy and Physiology, edited by Dr. Todd, Article, "Artery, Pathological Conditions of," Professor Porter has given the history of a case in which the popliteal artery and vein were the vessels implicated.

Mr. Thurnam is, however, the author to whose laborious researches and observations we are indebted for the best description of spontaneous varicose aneurism; his paper, published in the fifth volume of the Medico-Chirurgical Transactions, Second Series, is too well known to require any commendation.

He includes in the same class, aortic aneurisms communicating with the pulmonary artery, or with the right auricle or the right ventricle of the heart, and in this arrangement he is probably justified, because, physiologically considered, the right side of the heart and the pulmonary artery are portions of the venous system, or of "the system of black blood," as Bichat would have called it.

The Dublin School has contributed some valuable cases of this latter description. The reader is referred to the eighteenth volume of the First Series of the Dublin Journal of Medical Science[a], where he will find amongst the records of the Dublin Pathological Society a case by Dr. Robert Smith, Professor of Surgery to the University of Dublin, in which a communication was established between the aorta and the pulmonary artery; and Dr. M'Dowel has still more recently laid before the same Society a specimen of aortic aneurism which burst into the right auricle of the heart[b].

The following case is one of sufficient importance to be specially recorded:—

Anne Flynn, aged 50, was admitted into the hospital of the South Dublin Union, on April 22nd, 1853.

She had been employed the day previously in the laborious occupation of scouring buckets, and whilst stooping for this purpose she suddenly felt as if strangled. So perfect was this illusion that for some time she could scarcely divest herself of the belief that there was a ligature around her throat. At the same moment her face exhibited a remarkable change in colour which was immediately observed by the bystanders; her breathing became greatly embarrassed, and she felt an indescribable sense of suffocation, accompanied by an extreme degree of giddiness.

[a] Page 164.

[b] See Proceedings of the Pathological Society of Dublin, January 13th, 1849.

It was with difficulty that she made her way to bed, where she spent a wretched night, not venturing to lie down for a single moment, so great was her fear of suffocation.

Next morning, on seeing her for the first time, I ascertained that she was a married woman with five children; she had never suffered from syphilis, nor from rheumatism, nor had she ever taken mercury. She had been for the greater part of her life employed as a thorough servant and laundress, situations which required much bodily exertion; her health, however, had been excellent up to her forty-fourth year, when, without any very assignable cause, she began to suffer from slight dyspnœa and palpitation of the heart on straining or making any unusual exertion, such as walking quickly, or going up stairs. She had never suffered from cough, hemoptysis, fainting fits, or epilepsy; but of late years, on two or three occasions, her breathing had become greatly oppressed, and she then experienced immediate relief from a moderate venesection.

Notwithstanding these ailments, she continued at service until about six months ago, when she was compelled by increasing infirmity to relinquish her employment. The stooping posture which she was obliged to assume when washing was her chief difficulty, for it invariably produced puffiness of the eye-lids, a swollen condition of the face and hands, and some embarrassment of the breathing.

On seeing this woman my attention was at once arrested by her colour[a]; it was that of cyanosis; her face was of a deep plum colour; so were her neck, her shoulders, and the upper parts of her chest. The contrast was very remarkable between these parts and the lower portion of the trunk and inferior extremities, which were pale in colour, and almost bloodless in appearance. The eyes were prominent, they appeared as if starting out of the orbits, and in both of them there was extensive sub-conjunctival œdema. The face, both sides of the neck, and the upper and anterior parts of the chest, were much swollen and puffy, so that the clavicles were fairly buried in the swelling. The swollen parts afforded upon pressure neither the pitting of anasarca nor the crackling of emphysema; to the finger they felt soft and downy, just like an emphysematous lung.

The veins of the head, the neck, the upper extremities, and the upper part of the chest, were all enormously distended, and in many instances even varicose. The superficial jugulars (particularly the right) were turgid, and as large as the index finger. In a word, *all the tributaries of the superior vena cava*

[a] See Plate VI.

were intensely congested, and all the soft parts from which these tributaries spring were swollen and discoloured, whilst *the tributaries of the inferior vena cava, and the corresponding soft parts*, were perfectly free from the slightest trace of congestion, tumefaction, or discoloration.

The arterial circulation was apparently unobstructed; in both the radial arteries, and also in both the femorals, the pulse was full, strong, and about 110 in frequency; it had, however, the jerking character usually associated with aortic valve inadequacy.

It is material to add, that this woman sat up in bed almost instinctively, for whenever she attempted to lie down for a moment her face assumed a deeper dye, and a sense of impending suffocation compelled her to resume the upright posture.

Percussion and auscultation showed that the left lung was everywhere healthy; so was the right lung *posteriorly*. In front, however, the chest sounded extensively dull on percussion; the dull region extended from the sternal third of the right clavicle *above*, to within one inch of the right nipple *below;* anteriorly it was bounded by the left margin of the sternum: the sternal extremities of the three superior right ribs, the corresponding costal cartilages, and intercostal spaces, and the upper half of the sternum, were consequently comprised in this dull region.

At the sternal extremity of the second rib, on the right side, and along the adjoining intercostal spaces to the sternum, a very remarkable, heaving impulse was communicated to the hand as well as to the stethoscope; this impulse was single and systolic; it was also plainly visible when viewed sideways, and vastly exceeded in point of strength the impulse communicated by the apex of the heart itself. An extremely distinct *frémissement*, and a remarkably loud whirring *bruit*, accompanied this abnormal impulse. To the ear the *bruit* conveyed the sensation of being situated very superficially within the chest: it was single and systolic, and had its maximum of intensity at the costal cartilage of the second rib; there was scarcely any part of the chest, either anteriorly or posteriorly, at which this *bruit* was not plainly audible; but its intensity diminished exactly in proportion to the distance from the costal cartilage of the second rib, right side, and thus it was impossible to doubt that the organic source of the murmur was there situated.

The region of the heart afforded no abnormal dulness; the rhythm of the heart appeared natural; but the loud whirring *bruit*, above described, was transmitted over the entire præcordial region, and rendered an accurate exploration of the heart's action difficult.

In the upper and anterior portion of the right lung the re-

spiratory murmur was absolutely inaudible, and from the right nipple to the lower margin of the chest in front it was likewise exceedingly obscure, although in that region the sound on percussion was natural. There were no *râles* audible over any part of the chest, but there was an occasional short cough, unattended with any expectoration.

Although the puffy and swollen condition of the soft parts rendered it a difficult matter to explore the deeper veins of the neck by the finger, yet by exerting a moderate amount of pressure over the course of the right subclavian and internal jugular veins, at a short distance above the clavicle, *the "purring tremor" was plainly recognised;* over the corresponding vessels at the *left* side of the neck this peculiar physical sign was absent.

April 23rd. The breathing appeared somewhat relieved by venesection to six ounces, practised the preceding day; the face was rather less congested; she had no sleep whatever; there was continued orthopnœa; the physical signs remained as before.

26th. She had been repeatedly leeched upon the upper part of the chest, since the date of the previous report, and each time with decided relief to her breathing; the capillary congestion had somewhat lessened; the sub-conjunctival œdema had disappeared; the physical signs were unaltered; there was still absolute orthopnœa; the stomach now, for the first time, became irritable, it rejected all kinds of aliment, yet there was no epigastric heat or tenderness.

29th. Her manner had suddenly changed; she was less intelligent; her answers were slow and stupid; her stomach was still irritable; she had dozed a good deal during the night, and raved incessantly. Late in the day she was seized with general convulsions; to the attendants it appeared to be an ordinary epileptic paroxysm; out of this she never rallied, and her death took place at nine o'clock in the evening.

Post-mortem Examination twelve hours after death.—Head: Scalp much congested and œdematous; veins of dura mater turgid; a considerable amount of serous effusion (but without any lymph) in the arachnoid sac. The veins of the cerebral hemispheres, especially in the neighbourhood of the superior longitudinal sinus, much congested. Large quantities of serum in the sub-arachnoid spaces and in the ventricles; the cerebral substance healthy, disclosing, however, when incised, a profusion of bloody dots.

Chest and Neck.—The sub-cutaneous areolar tissue of the neck, the chest, and the upper extremities, anasarcous; *the lower extremities perfectly free from the slightest œdema;* ex-

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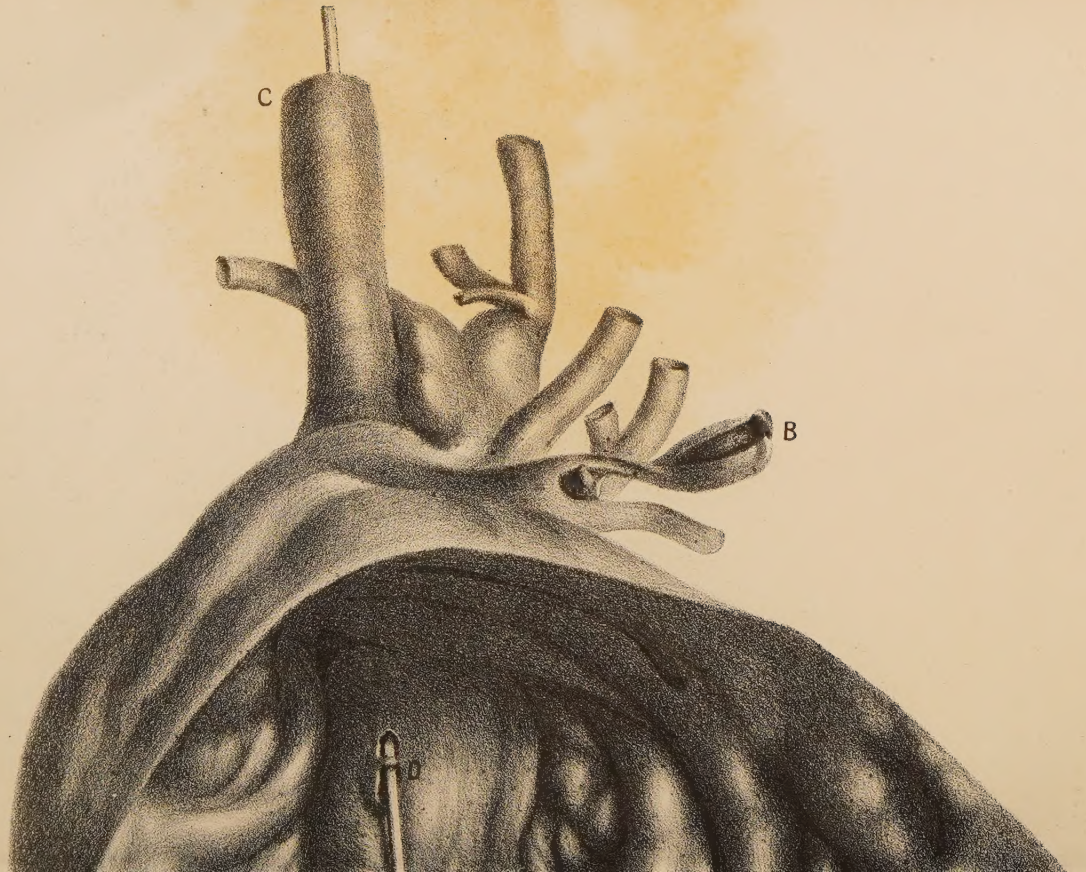
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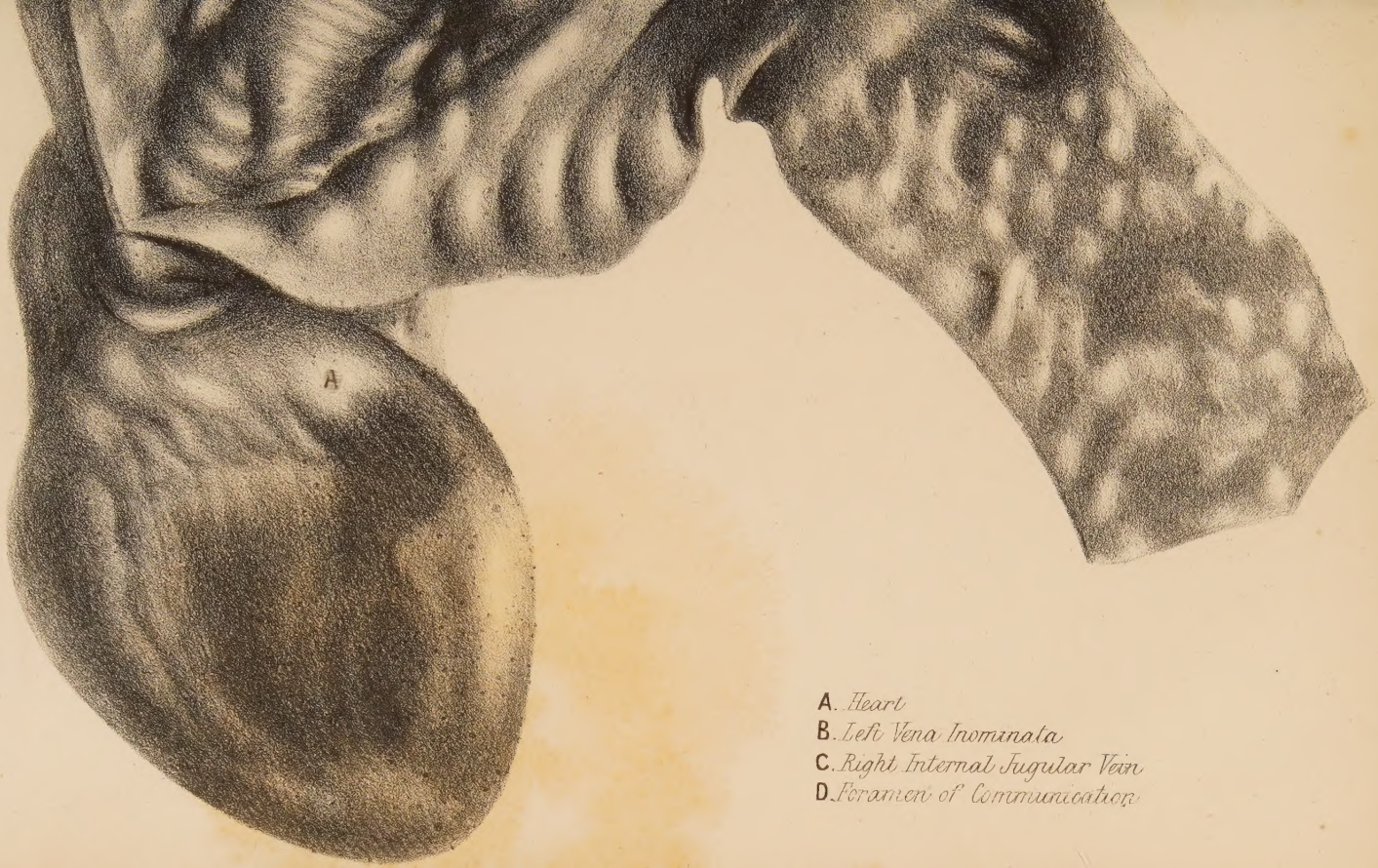


A. *Heart*
B. *Left Vena Innominata*
C. *Right Internal Jugular Vein*
D. *Foramen of Communication*

treme congestion of the jugular and other veins of the neck, superficial as well as deep. The right internal jugular enlarged, so as almost to equal the small intestine in point of size, and distended with black blood. The left internal jugular, the subclavian, and the innominata veins, filled with black, firm, non-adherent coagula.

The substance of the lungs remarkably healthy; the mucous membrane lining the trachea and the bronchial tubes of both lungs very vascular, and of a vermillion hue; a small quantity of tenacious, gelatinous-looking mucus in the trachea and larger bronchi.

Heart.—A dessert-spoonful of serum in the cavity of the pericardium; heart absolutely healthy; all its chambers, its valves, and its muscular structure, perfectly normal.

Aorta.—Aorta enormously dilated[a]; the entire arch of the aorta, and about two inches of the descending or thoracic aorta were comprised in this dilatation, which formed a vast pouch of an oblong shape, presenting at the exterior all the appearance of a huge aneurismal tumour. This pouch filled up the mediastinum, and projected considerably, to the right of the sternum, into the right pleura, where it encroached extensively upon the root of the right lung, and upon the superior intercostal spaces. From the upper part of this pouch, the innominata, the left carotid, and the left subclavian arteries, arose; to the surface of this pouch the left vena innominata and the superior vena cava adhered. The left vena innominata, crossing from left to right, was so completely identified with the diseased aorta that all attempts to separate these vessels by dissection were fruitless. Along the line of contact the coats of these vessels were so perfectly amalgamated that they constituted conjointly but a single flimsy partition between the venous and the arterial blood. The right vena innominata and the descending cava were similarly united to the right side of the aortic pouch, and here a free communication had actually been established between the aorta and the vena cava, the intermediate partition having given way.

The left vena innominata and the superior cava *had undergone a considerable diminution in caliber at those parts of their course where they adhered to the aorta*, but lower down, where the cava receives the vena azygos, and debouches in the right auricle, it regained its ordinary dimensions; thus two fingers readily entered it from the cavity of the auricle; one finger traversed it with difficulty higher up at its amalgamation with

[a] See Plate VII.

the aorta, whilst still higher up, as already described in the neck, the great tributaries of the superior cava were found enormously dilated.

On cutting into the aneurismal pouch, it was found to be formed by a true dilatation of the aorta, all the coats of that vessel being perfect, although greatly diseased and thickly studded with atheromatous deposits. A large, soft, black coagulum filled this enormous pouch: on slitting up the pouch the coagulum readily turned out, there were no *laminated* coagula whatever. The orifice of communication with the vena cava came readily into view on the removal of the coagulum; it was oval in shape, with sharp, irregular edges, very unlike what might have been expected had the aperture been one of long standing. In size and shape it resembled the button-hole of a shirt; there was, however, a delicate frenum crossing it about the centre[a].

In reflecting upon the history of this very remarkable case, it may be convenient to arrange the symptoms in two distinct classes,—the one referrible to the chronic disease of the aorta and the large adjacent venous trunks; the other expressive of the abnormal communication between the aorta and vena cava, which may be presumed to have occurred suddenly on the 21st of April, and to have ended fatally upon the 27th.

Extreme dilatation of the aorta, with the usual loss of elasticity in its coats, and marked constriction of the neighbouring venous trunks, were the principal *chronic* lesions present.

In circumference the dilated aorta measured at its widest part upwards of eleven inches; in length it measured nine. The load thus thrown upon the heart must have been enormous, and in this way accordingly there had been produced for a length of time a train of highly characteristic symptoms, such as dyspnœa and palpitation on any unusual exertion. With such an extraordinary amount of disease in the aorta it may appear wonderful that these symptoms should not have been more urgently severe, but the healthy state of the valvular apparatus of the heart, and the absence of any serious lesions of its walls or its cavities, afford a plausible explanation of this apparent anomaly.

The constrictions existing in the superior vena cava and in

[a] I have found but three cases on record similar to the above. The first of these was published anonymously in the Lancet, 1832–3, vol. ii. p. 666. The second appeared in the twenty-first volume of the Dublin Journal of Medical Science, first series, p. 444. To this case, related by Professor Law, reference has been made already. The third was published by Dr. J. Reid in the Edinburgh Medical and Surgical Journal, 1840. The first and third have been quoted at length by Mr. Thurnam: Dr. Law's case will well repay perusal.

the left vena innominata were also strongly expressed in this woman's history; the stooping posture which she was obliged of necessity to assume at her wash-tub was of late years certain to produce puffiness of the eyelids, a swollen condition of the face and hands, together with embarrassed breathing, *because* this position was unfavourable to the venous circulation, already permanently obstructed in the vicinity of the heart.

The diseased condition of the aorta had probably been of six years' growth, and accordingly the dilatation of this vessel had occurred so very gradually that all the neighbouring organs had accommodated themselves to its encroachments. The root of the right lung was so much overlapped by the aneurismal pouch, and the upper portion of this lung was so much displaced by it, that there was marked dulness on percussion, with nearly complete absence of the respiratory murmur over a considerable portion of the right side of the chest in front; and yet there was no cough, there was no hemoptysis, there was in fact nothing to indicate much pulmonary irritation, the dyspnœa and palpitation complained of being much more fairly attributable to the dilated artery and the constricted veins, than to the compressed lung. In all this we recognise the extraordinary powers of adaptation which the lung is known to display under extraneous pressure, so long as the pulmonary structure remains healthy, and the compressing force comes to be exerted gradually.

How long this state of things might have continued to be endured under favourable circumstances it is impossible to say. A very trifling accident deranged the balance of the circulation, and converted a state of comparative security into one of imminent peril. On the 21st of April an imprudent exertion on the part of this woman was followed by a sudden perforation of the partition which separated the venous from the arterial current. This untoward event occurred in the stooping posture, in which it may be conjectured that extreme congestion of the vena cava on the one hand, or an increased momentum of the arterial blood on the other, produced an unfortunate strain upon the intermediate septum. The effect was instantaneous; a sudden sense of strangulation, great embarrassment of the breathing, an extreme degree of giddiness, an indescribable dread of suffocation, absolute orthopnœa, and an extraordinary change in her colour, were the immediate consequences of this accident; extreme turgidity of all the tributaries of the superior cava, and a swollen, puffy, in short, a dropsical condition of all the areolar tissue from which those tributaries arise, quickly followed; and thus the prominent eye-ball and

the sub-conjunctival œdema, so remarkable next morning, are accounted for.

Notwithstanding the most assiduous efforts to relieve the venous congestion by means of local depletion frequently repeated, the brain soon showed that it could not bear with impunity such derangements of its circulation; its veins were proved by post-mortem examination to have been inordinately congested; possibly its arterial supply may have been defective; but be this as it may, an irritable state of the stomach, which nothing could allay, set in on the 26th, and was quickly followed by a sudden and remarkable alteration in her manner, a slowness and stupidity in her answers, with slight aberration during the day, and incessant raving during her sleep; finally, frightful and fatal convulsions, on the 27th April, left little room to doubt that the nervous centres had suffered irretrievably.

The diagnosis which I ventured to make in this case was "an aneurism of the aorta communicating with the superior cava." It was based upon the following considerations:—

1st. The congested condition of the entire tree (roots and trunk) of the superior vena cava, and the perfectly healthy condition of the corresponding tree of the inferior cava, showed that the organic source of the mischief was situated somewhere in the course of the trunk of the superior vena cava.

2nd. The extensive dulness on percussion in the upper part of the sternal region rendered it almost certain that there was a tumour of considerable size in the mediastinum.

3rd. The extraordinary heaving impulse communicated to the stethoscope, and even to the hand, all over the dull region, and the strength of this impulse, which was vastly greater than that afforded by the apex of the heart itself, appeared to show that this mediastinal tumour was aneurismal.

4th. The dulness over the superior costal cartilages and intercostal spaces of the right side of the chest in front, with the defective respiratory murmur in the upper part of the right lung anteriorly, rendered it probable that this aneurism had encroached upon the lung; the total absence of any symptoms of pulmonary irritation making against the supposition that there was any special disease either of the lung itself or of the pleura.

5th. The perfect freedom of the circulation in the carotids and the subclavians made it likely that the aorta itself, and not one of its three great branches, was the source of this aneurism.

6th. The peculiar whirring *bruit* at once suggested the

idea of an abnormal communication between a vein and an artery, for it was a whirr (there is no more expressive term) such as I had never heard before, except in cases of the ordinary traumatic varicose aneurism, or the traumatic aneurismal varix. The site at which this *bruit* was most intensely audible, viz. at the costal cartilage of the second rib upon the right side, and its seemingly superficial source within the chest forbade the notion of its originating in any valvular disease of the heart; and it certainly sounded very unlike any ordinary aneurismal *bruit*, or even any anemic *bruit*.

7th. The suddenness with which the distressing symptoms had set in, but above all the purring tremor observed to the right of the sternum anteriorly, and also *along the course of the great venous trunks in the neck*, afforded additional evidence, all but conclusive, of the nature of the disease.

8th. Even the pulse was characteristic, for its "peculiar jerking feel" depended upon the imperfect distention of the arteries which resulted from the passage of a portion of the aortic blood into the vena cava through the abnormal orifice. A precisely similar condition of the arteries, although arising from a totally different cause, produces the very same sort of pulse in permanent patency of the aortic valves, the disease so admirably described by Dr. Corrigan.

Most observers have agreed in describing the *bruit* heard in cases of varicose aneurism as a *continuous* murmur, louder doubtless during the systole of the heart, and somewhat more feeble subsequently, but nevertheless *continuous*. Mr. Thurnam has even stated that "the intensity and continuousness of the murmur will, probably, altogether distinguish it from any that is heard in ordinary cases of aneurism or valvular disease of the heart." Now it deserves to be particularly mentioned that in the case above detailed the murmur was distinctly systolic, and systolic *only; continuousness* can therefore no longer be considered an essential characteristic of the murmur accompanying varicose aneurisms.

Mr. Thurnam has given the following explanation of the *continuousness* of the murmur in varicose aneurisms:

"As a consequence of the superior force of the left ventricle, the arterial blood is, doubtless, propelled through the varicose orifice, and so produces the murmur. During the systole of the heart the current through the orifice is the strongest, and the sound consequently is then the loudest; during the diastole, in consequence of the elastic re-action of the arterial system on its contained blood, a less powerful current is propelled through the opening, and at that time a

somewhat weaker murmur is heard. This re-action of the arteries, however, is in operation not only during the diastole, but also during the interval, and in fact until it is overcome by the succeeding ventricular systole; consequently, though the current is stronger at the commencement of this re-action and synchronously with the diastole, yet it is also continued during the interval. Hence the murmur is a continuous one, it being present, though much weaker, during the interval between the diastole and the succeeding systole."

In the case of Anne Flynn the extreme disease of the aorta had destroyed its elasticity, so that there was no "re-action of the artery upon its contained blood." The conditions necessary to the production of the second and weaker portion of the murmur were thus unfulfilled, and the murmur was therefore *not continuous.*

The remarkable difference observable in the symptoms, the progress, and the result of the ordinary traumatic varicose aneurisms of the extremities, and the spontaneous varicose aneurisms of the aorta, is a subject of the deepest interest. In the former class of cases it may be stated, as the general rule, that little danger is to be apprehended, whereas in the *latter*, a fatal result, and that speedily, is almost certain to occur.

In the traumatic varicose aneurisms of the extremities there are seldom the distended and varicose state of the veins distal to the orifice of communication, the dropsical condition of the soft parts, and the extreme dyspnœa so painfully portrayed in the case before us.

It has been said in explanation, that in the traumatic varicose aneurisms of the extremities there are so many collateral venous channels, that the obstruction caused by the influx of the arterial current into any one of them, is immediately counteracted by the freedom of circulation in the others, whereas the superior vena cava has no such collateral channels for its relief.

In addition to the above explanation, we ought, I think, to bear in mind, that in the *spontaneous* varicose aneurism, the vein, *previous to its perforation*, has been compressed, obstructed, and sometimes even strictured by the pressure of the aneurismal tumour, and thus the fatal venous congestion which a mere accidental communication between a healthy artery and its accompanying vein would fail to produce, readily enough ensues when long-continued pressure upon the vein has preceded.

In the traumatic varicose aneurism there is a *healthy* artery in communication with a *healthy*, although a dilated, vein. In

the spontaneous varicose aneurism there is an *aneurismal* artery in communication with a compressed or even a morbidly constricted vein; and under such circumstances it may be no easy task to assign to each of these causes its proper share in the production of the fatal issue. Witness the case of Anne Flynn.

Mr. Thurnam has pointed out another source of peril in the spontaneous varicose aneurisms of the aorta, not found in the traumatic varicose aneurisms of the extremities. The arterial blood, which is constantly passing in a large stream into the vein, soon comes to circulate along with the venous blood through the lungs, acting as a stimulant and an irritant to the pulmonary structures, and hence the cough, the dyspnœa, the blood-tinged expectoration, and the pulmonary congestion, which such cases not unfrequently exhibit. In the traumatic varicose aneurisms of the extremities, on the contrary, the quantity of arterial blood passing into the vein is small, owing to the limited size of the vessels implicated, and its effects upon the pulmonary organs are but trifling in consequence of the great distance from the lungs at which the intermixture takes place.

Art X.—*Contributions to Clinical Surgery and Medicine.* By William Hargrave, M.B., President of, and Professor of Surgery to, the Royal College of Surgeons of Ireland; Surgeon to the City of Dublin Hospital, &c.

The following cases, as bearing on some practical points, may not be altogether devoid of interest to some members of the profession, and are published with the view of confirming or modifying practical indications pursued in their treatment. As we are engaged in a common cause,—the advancement and improvement of our profession, if I can add any suggestive precept to obtain in any way a step in the above direction, I am amply repaid for my exertions in so deserving an object.

Case I.—*Luxation of the right Humerus into the Axilla, and Fracture immediately above the Condyles.*

William B., a painter, aged 42, was admitted into the City of Dublin Hospital, June 3rd, 1853. He fell from a height of thirty-three feet, dislocated his right humerus high up into the axilla, fractured the same bone immediately above the condyles, and had most extensive contusion and sanguineous effusion of the leg and foot of the same side, the sole of which

was so distended with effused fluids as to render the hollow of its arch almost obliterated. This appearance was well seen when the injured foot was contrasted with the sound one.

He was a tall and powerfully-made man. On admission, he complained of intense pain about the shoulder and in the axilla, extending down the arm, fore-arm, and to the little finger. The symptoms both of the luxation and fracture were well marked; an attempt made to coapt the last injury failed to accomplish it.

The line of practice in this case consisted in applying splints and bandages on the unreduced fracture and arm; the lax and extending appliances were next arranged to the arm upon the splints and the bandages above the fracture; the scapula was then secured by a bandage, and confided to the care of assistants. Extension was now commenced and continued for some time, when the head of the bone was found to be dislodged from its situation, and was soon restored to its natural cavity. Contemporaneous with the reduction being effected, all pain of the shoulder, axilla, arm, fore-arm, and little finger ceased, and I was agreeably surprised to experience the greatest facility in setting the fracture and maintaining it in its proper situation, though prior to the reduction of the humerus it could not be brought into its natural position, principally from the action of the triceps extensor muscle.

The subsequent treatment consisted in measures to relieve the effects of the contusion and to expedite the absorption of the effused blood. He was discharged from hospital July 7th, with the motions of the fore-arm perfect for every useful purpose.

It had been generally taught in complicated injuries of this kind now detailed, and laid down by Petit, to allow the fracture to unite before the attempt at reduction of the luxation was made, and then to undertake the reduction. Such a proceeding, however, is not the most eligible. From the success of this case, also of one under the care of my former colleague, Mr. Orr, in this hospital, and a few reported in different medical journals, the rule should be, in the first instance to arrange the fracture in a temporary manner, and then endeavour to reduce the dislocation, which can be much facilitated by placing the patient under the influence of chloroform[a]. If

[a] Referring to the use of this agent, I may here observe that, during the present summer, I had nearly lost a patient under its use. A young man suffering from acute strangulated inguinal hernia had inhaled not more than one drachm and a half, by measure, of chloroform when he was completely under its influence, and maintained in that state with scarcely any additional inhalation: the taxis completely

the reduction succeeds, the case is thus rendered more simple, and more likely to terminate favourably; but should the attempt thus made fail, the surgeon has then nothing to tax himself with, and must meet this complication in the most skilful way he can, always forewarning his patient of the extreme complexity of his case, and perhaps unfavourable issue of the accident.

If the contrary practice is followed, viz., first attending to the fracture, allowing it to unite, and then attempting the reduction of the dislocation, we have to encounter what may be considered an old unreduced luxation, and may be baffled in our efforts, or perhaps add to the complication by unintentionally re-fracturing the bone. In this special case such was the intensity of the pain the man experienced from the effects of pressure upon the brachial plexus, that the reduction of the luxation was imperiously required.

Sir Astley Cooper was the first surgeon to advise the endeavour to reduce the luxation and then attend to the fracture; I might add, from theory, as in his treatise on Dislocations and Fractures, this precept is not supported by any case, while every other rule of practice in it is supported by reference to cases. This patient called on me on the 6th of August last, when he had recovered the perfect power of extending and flexing his fore-arm.

Case II.—*Compound and Comminuted Fracture of the Lower Jaw.*

Michael M'D., aged 42, was admitted into the City of Dublin Hospital June 3, 1853, with a compound and commi-

failed: and it is not the only case in which I have witnessed the inutility of chloroform as an assistant to the taxis. This young man, three different times, was so collapsed that neither the cold dash, decidedly and energetically applied, nor the use of stimulants, nor insufflation by a most zealous pupil, Mr. Taylor, had any permanent effect in rallying him from the perilous condition he was placed in; the agency of cold air could not be had, the evening was so calm and close. In this impending state of dissolution, *no pulse at the wrist, respiration completely arrested* for a minute, perhaps more, we were compelled to plunge needles into the situation of the diaphragm and scalenus muscles, and then have recourse to galvanism. Happily, by this treatment we prevented another instance of unintentional death from chloroform, and a coroner's inquest. But for galvanism this patient was lost, and the case should impress upon all the imperative necessity of having every effective means ready to counteract the injurious action of such an uncertain agent as chloroform. In conversation with an American physician who visited the hospital in the month of July, amongst other topics I happened to speak of chloroform, and the hard and anxious task imposed on me to save this lad's life from its effects,—he mentioned that he had witnessed the death of one of his patients by the administration of it, he giving an unwilling assent to its use by inhalation in a case of delirium tremens; and observed that he should never sanction its employment again; also observing that its use was now given up in Philadelphia.

nuted fracture of the lower jaw, caused by a fall from a height of about thirty-two feet; it was fractured in the symphysis menti; the two left incisors and the canine tooth of that side were detached from the general structure of the bone with the corresponding alveolar portion of it, so loose as almost to tempt their removal, and were upon a much higher level than the corresponding teeth on the opposite side. The left part of the body of the bone was also broken a little anterior to the insertion of the masseter muscle; these injuries communicated internally with the mouth near the symphysis, and externally below the chin to the left of the mesial line; there was smart hemorrhage from both wounds; superadded to these injuries there were extensive ecchymoses in both temporal regions, also on the right and inferior part of the neck, and considerable effusion of blood on the left arm and fore-arm.

The effusion of blood and tumefaction about the fractured portions of the jaw were so great, also the hemorrhage, that for the first few days little more was attempted than to retain the parts *in situ* by a well-applied *capistrum capitis* bandage, and to restrain the hemorrhage by a decoction of matico with the tincture, used as a wash and gargle for the mouth.

Four days after admission the tumefaction about the jaw was so much diminished as to permit the parts to be supported by a splint of gutta percha, made in the form of the capistrum bandage; it was useless to attempt to confine the different fractured portions in coaptation by ligatures, either metallic or of other material, as there was no fulcrum to attach them to, so that I was compelled to trust to the bandages so much in use for these accidents. It was observed, after a few days' use of the gutta percha splint, that it had the effect of compressing the fractured portions of the bone towards the mesial line, and in this manner adding to and maintaining the deformity. To remedy this imperfection I had a splint or shoe of gutta percha made by modelling it upon the jaw of a healthy individual, one of the pupils, of such a form as to support the bone laterally, and for the entire of its extent from the chin to the angles, and a masseteric piece which was as deep as the ramus of the jaw; when it had cooled, the shape was preserved in the most perfect manner; it was then lined and padded with lint, and tapes attached to it, so as to secure it when *in situ* above the head, and behind the occiput and neck. This splint so made was then applied, and answered every purpose required; the bone resting cushioned upon it in the most easy manner, allowing and maintaining the coaptation of the different portions of the fracture in the most perfect adjustment,

and causing no displacement towards the mesial line. The wound under the chin healed up, but after the lapse of seventeen days an abscess formed in the situation of it, broke, and discharged a large quantity of matter, in all probability caused by some small detached portion of the bone.

The patient was dismissed from hospital August 1, with a small fistulous orifice still open, the bone consolidated, and the small portion of it, which contained the incisors and canine of the left side, also becoming more firm, and about two lines above the level of the rest of the teeth.

In many fractures of the lower jaw I have witnessed some annoyance experienced by over care and anxiety of the surgeon to carry out in too decided a way the three principles in managing a fracture: extension, counter-extension, and coaptation,—especially the last. I may say that I have seen the parts rendered rebellious by over care to maintain them in position by retentive means, such as by ligatures of various kinds, and by metallic splints, as after the lapse of a few hours all those parts, which required much time and attention well directed to keep them in relation, were again displaced, and the treatment so commenced had to be finally abandoned; hence meddlesome surgery should be discontinued in such cases.

Surgeons are also frequently over anxious to prevent deformity; this does not often follow injuries of the jaw, not even when a portion of a bone exfoliates. What little deformity succeeds to the operations in which portions or even one-half of the jaw have been removed!

CASE III.—*Separation of the Symphysis Menti, and no Displacement.*

John S., aged 33, a groom, was admitted into hospital January 5th, 1853, with extensive contusion and effusion of blood into the left thigh, which measured an inch and a half in circumference more than the right one; he also had a trifling contusion of the face: the accident was caused by a horse and car falling upon him.

The contusion and effusion of blood were quickly being removed by the agency of smart purgatives and tartar emetic, also cold applications to the limb,—leeching and venesection being prohibited, in consequence of erysipelatous inflammation of a bad character being in the house,—when the man complained of much pain referrible to the face and lower jaw towards the chin, and some difficulty of opening his mouth, also of deglutition; he was more distressed about these symptoms

than about the condition of his thigh. There was nothing referrible to the inferior maxilla to lead to the conclusion that there was either a fracture or any other injury of the bone, except the pain; his teeth in both jaws were perfect and regular, indicating no displacement whatever. No external examination detected any fracture; still, as the man complained of more than ordinary pain of the bone towards its anterior part, I instituted a very careful examination. By seizing the lateral halves of the jaw and abducting them from each other, crepitus was evident in the symphysis menti, and irregularity in their relations was readily produced. When the force was discontinued by which they were abducted, the halves fell into regular juxtaposition, and the incisors presented their natural and even relations, and the jaw its normal appearance. The jaw was maintained *in situ* by a capistrum bandage, with great relief to him. He left the hospital the day following, and did not return to it.

This is the only instance of separation or fracture in the symphysis menti I have met with, in which there was not present some deformity and irregularity in the relations of the incisor teeth, one set being on a plane lower than the other; they could, however, be easily restored to their natural position by manipulation, and so maintained in it;—except in one instance, in which I encountered extreme difficulty in keeping the displaced parts in juxta-position for any length of time, though every available appliance was employed, with the use of the ligatures and metallic splint: the case was one of compound fracture of the jaw in the symphysis, with other injuries of the head, which caused diffuse inflammation, extending from the base of the cranium to the throat, and terminated in death.

I may add, that in the Number of this Journal for May of the present year is contained the account of a new method, proposed by M. Robert, of Paris, for the treatment of fractures of the alveolar portion of the lower jaw, which is deserving of attention.

Case IV.—*Severe Contusion of the left Leg above the external Ankle, with a well-marked and peculiar symptom simulating Fracture.*

John S., aged 21, a labourer, was admitted into the City of Dublin Hospital January 17, 1853, suffering from severe contusion and extensive ecchymosis of the left leg, immediately above and around the external ankle, caused by a piece of timber falling on the limb.

This injury presented all the characters of a minutely comminuted fracture of the fibula caused by direct violence; in the centre of the injury there was a considerable effusion of blood; when examined carefully, in the fundus of it were apparently loose comminuted fragments of bone, while in the circumference, particularly in relation to the malleolus, and the part of the fibula above the injury, there was a hard, firm, and osseous circumscribed margin of some lines in breadth. This lesion gave in the most marked manner all the characters of Pott's bloody tumour of the scalp. So well indicated was this symptom, that it was only by the most attentive examination that a correct diagnosis was arrived at,—rest, cold lotions, and, finally, a starch bandage, set all to rights.

MALAPERTI'S TREATMENT FOR THE DISPERSION OF BUBOES.

It is beneficial for us occasionally to review and reflect upon our practice, and to inquire if any particular point bears the test of continued experience, so that it should be persevered in, changed *in toto*, or modified. I have been thus induced to examine into the results of Malaperti's treatment for the dispersion of buboes, so as to prevent them from bursting, or requiring to be opened by the surgeon.

In the Dublin Medical Press, vol. xv., p. 263[a], I have mentioned the results of this treatment, and, from more extensive experience, I am more convinced of its practical value, and find it still of great advantage even in those instances in which it fails to disperse the bubo after matter has formed, for I have found it to expedite healing after the bubo has been opened, thus curtailing a prolonged convalescence, and preventing the risk of any phagadænic complication in the edges of the ulcer. I would also direct the attention of the junior members of the profession, when called to open abscesses in the groin, to make the incision always *at right angles* to Poupart's ligament.

During the past summer a Swedish surgeon, when visiting the City of Dublin Hospital, inquired in a very particular manner if Malaperti's treatment was sufficient to disperse syphilitic buboes, which it undoubtedly is capable of doing. The medical treatment, combined with the local one, as indicated by me in the communication above referred to, makes "assurance doubly sure" in the management of these abscesses.

[a] On the Repellant Treatment of Buboes, illustrated by Cases.

GUNSHOT WOUNDS.

It is still an unsettled question in this department of surgery, what is the character and appearance of the entrance and exit of a *spherical* ball.

Guthrie, Blandin, Dupuytren, and Malgaigne, state that the entrance is somewhat larger than the exit; in my limited experience of these accidents I agree with those authorities; and in some cases have always seen the entrance present a circular depression, while in some few of them the exit exhibited as clean an orifice—rather slit—as if made by the most perfect edged scalpel: in one most remarkable case, in which the gentleman fell in a duel, the ball traversed the thorax, and made its exit at the apex of the left axilla, which presented a circular depression, with the circumference slightly ecchymosed, so as to lead to the impression that it was the entrance, which, from the position of the parties, was physically impossible.

M. Roux, on this question of surgery, considers that there is no absolute rule, as much depends on the velocity of the missile, its force, distance, and direction.

As a new missile has been of late years introduced into military operations, the conical ball,—that used with the minie rifle,—does its entrance into the body form a differently shaped orifice from that of the spherical ball? From a single instance which came under my observation in hospital this summer, it presented more the character of what I may term a clean lacerated slit, about one and a half inch long. The case was as follows:

A lad named Wall, aged 17, was sent into hospital, July 27th, with a wound on the dorsum of the foot, a little posterior to the fourth and fifth toes, extending across the metatarsal space between these two bones, the centre point of the injury corresponding to that of the interosseous space. The injury had been most judiciously treated, and the lad mentioned that the wound had been carefully probed, but no ball found; he complained of no pain, except in the sole of the foot, a little posterior to the ball of the great toe; there seemed to be a slight fulness in this situation, but not sufficient to justify the immediate cutting down upon such insufficient data in search of a foreign body which might not be found, or was not there: it was also possible that the ball might have been rejected by the elasticity of the metatarsal bones, it having impinged on them; or it was possible it might have penetrated and passed through the interosseous metatarsal space, and lodged in the foot.

Acting partly under such an impression, I did not attempt to probe through such a tortuous channel.

The treatment consisted in the action of the water battery on the foot, and the administration of the anti-tetanic pile[a]; in two or three days he was free from all distressing sensations, the fulness and uneasiness near the ball of the toe having subsided.

On resigning this case to my colleague, Mr. Tufnell, on the 1st of August, I was not satisfied either as to the presence or the absence of the ball, but acted on the *médecine expectante* of the French. On the 10th of the month he extracted it from behind the great toe, where it was lodged, perhaps, from the time of the accident. It proved to be of the conical form, or the minie rifle-ball. Had it traversed the foot, what would have been the form and appearance of the exit?

Art. XI.—*Observations on Excision of the Lower Jaw, illustrated by the Report of a Case in which the Operation was performed.* By Samuel G. Wilmot, Surgeon to Steevens' Hospital; Lecturer on Surgery in the Carmichael School of Medicine, &c. &c.

Bold as the operation of excision of the lower jaw may appear, experience proves it to be not only comparatively easy of execution, but highly successful in its issue. Probability of success is the grand circumstance that recommends any operation, and it is by the measure of success attending it that the advantages of the operation are to be weighed, and its relative superiority established. But every operation is to be considered in a double point of view as regards success:—first, the certainty with which its object can be executed, viz., complete removal of disease; secondly, the security of recovery from its effects. The operation under notice particularly urges its claims upon the surgeon from the possession of this twofold advantage. The statistical returns of excision of the lower jaw, as it has been performed for the last forty years in Great Britain, on the Continent, and in America, are such as to entitle it to a high place in the estimation of the operator, and to afford good encouragement to him who undertakes it. A

[a] Consisting of a grain of calomel, one or two grains of James' powder, one grain of aloes, one of ipecacuanha, and an eighth or a quarter of a grain of opium, every fourth hour. The formula for this pill I got from Mr. Peile, and I have found it a most valuable medicine in lacerated, contused, and punctured wounds.

successful termination, however, is not the only circumstance which invests this operation with a superiority over many others:—the small amount of hemorrhage that attends it, its freedom from those evil consequences so apt to supervene upon most operations, the facility with which the reparative processes are effected, and the little deformity that remains afterwards,—are striking particulars, and give it an advantage over almost any other operation of equal magnitude and importance.

Although excision of the lower jaw is an achievement of modern surgery, yet owing to the zeal by which surgeons of different countries have endeavoured to obtain for some distinguished member of their own body the merit of having been the first to perform the operation, the exact date of its origin, and its early progress, cannot be easily learned with accuracy. The French claim for Dupuytren the merit of having been the first to accomplish this great surgical undertaking,—a claim which is enunciated in the following enthusiastic language in the Leçons Orales de Clinique Chirurgicale:—"Quel nom donner à l'homme auquel l'humanité est redevable d'un si grand bienfait? Or hâtons-nous de le proclamer hautement ici, à la gloire de son auteur, à la gloire de la chirurgie Française: c'est en France, c'est à Paris, par notre célèbre professeur M. Dupuytren, qu' a été conçue et exécutée pour la première fois, en 1812, cette admirable opération." The Americans insist that the priority is due to Dr. Mott; while some British surgeons, upon less substantial grounds, from the absence of recorded evidence, award to Mr. White, of Westminster Hospital, that distinguished merit. We shall not here lose time in the endeavour to explore the history of this operation in order to establish unimportant points, or to reconcile conflicting statements,—it is sufficient to observe, that, as far as can be collected from published records, Dr. Deadrick, of Tennessee, was, in the year 1810, the first who removed a portion of the lower maxilla.

The grand epoch in the history of this operation, however, is the year 1812, when Dupuytren removed a large portion of the bone in Paris. After this period the operation was repeated frequently by that distinguished surgeon, and was performed by others in different countries, but by none more especially than by Mr. Cusack of this city, who, in the year 1825, and subsequently, executed the operation in several instances with unparalleled success. So early as the year 1818 Sir Philip Crampton excised a small portion of the lower maxilla; and in 1824 he removed two-thirds of the bone, so that, unless the report of Mr. White's case be correct, Sir Phi-

lip Crampton must have been the first who performed this operation in Great Britain,—a merit which is enhanced by his not having been aware of what had been previously accomplished by Dupuytren, Graafe, and Mott.

The operations, however, which were first performed upon the lower jaw by Dupuytren and others left the articulation untouched: the great achievement was to exarticulate the bone. The particulars connected with this advance in the operation are also difficult to be ascertained in consequence of discrepant statements. To Mott is very generally conceded the priority of performing exarticulation of the lower jaw, but I believe Graafe anticipated him by a year. Graafe, it seems, removed one-half of the lower jaw at the articulation in the year 1821, whereas Mott's case of exarticulation bears date May, 1822. In South's edition of "Chelius' Surgery" a case is given in which Mr. White actually "disarticulated the lower jaw bone from its socket five years before Graafe, and six years previous to Mott," —so far back as the year 1816. As this case, however, had not been previously published, the merit due to Graafe and Mott is not in the least degree diminished thereby. The first surgeon who accomplished exarticulation of the lower maxilla in Great Britain was Mr. Cusack[a]; in the years 1825–26 he performed the operation four times in succession. An account of these cases is to be found in the fourth volume of the Dublin Hospital Reports.

The fear of hemorrhage appears to have rendered surgeons very timid in removing the jaw at the articulation; and certainly when we reflect on the close proximity of the internal maxillary and external carotid arteries to the condyle, there is little surprise that such should have been the case at first. So impressed were Graafe and Mott with the risk of hemorrhage in the performance of the operation, that they recommend, as a preliminary step, the application of a ligature to the common carotid. Nothing, however, can be more absurd than adopting such a procedure, since ligature of that vessel beforehand, while it could prove no bar against hemorrhage, must greatly diminish the chance of the patient's recovery, and seriously complicate the case. Mr. Syme lays down the following objections against the plan of previously tying the carotid artery:—"1. It is unnecessary, since the only arteries which must and ought to be cut are the facial, some of its

[a] According to the statement in South's Surgery, above alluded to, the honour of priority must, of course, be granted to Mr. White; but as his case was not published for so many years, it does not detract from Mr. Cusack's merit, no more than from that of the two other distinguished surgeons mentioned in the text.

branches, and some branches of the temporal. 2. It must exhaust the patient, especially when the tumour throws an obstacle in the way, as in Penman's case, where there was hardly any space left for applying a ligature. Thus in one of Dr. Mott's cases the patient was so much fatigued as to require the delay of a day after the artery was tied. 3. It increases the danger, since it cannot be denied that there is always more or less risk of hemorrhage on the separation of a ligature from so large a vessel as the carotid. 4. It is of no use, since the anastomotic communications are so free that a ligature of the trunk is not sufficient to arrest the flow of blood from its branches. Thus, in Dr. Mott's case above-mentioned, the arteries which were cut during the operation required to be tied; and I have heard of a case where the operator, attempting to remove a tumour of the upper jaw, tied both carotids, and was still obliged to desist by the bleeding. 5. Any good effect that can be expected from tying the trunk may be obtained by compressing it after the integuments lying over it have been dissected off or divided." But in fact the danger of wounding either the internal maxillary or external carotid artery in exarticulating the jaw is not so great as at first sight would appear: a careful study of the anatomical relations of the articulation will demonstrate that the condyle can be removed without danger to either vessel, if only due care be taken: "Neither of these vessels," as Mr. Cusack has observed, "is in immediate contact with the jaw."

The following case, in which I recently operated, affords an example of disease of the jaw demanding excision, and will serve to illustrate the method of performing the operation. In it, however, the bone was not removed at the articulation, such a proceeding not being deemed necessary; it was divided through the symphysis, and midway between the angle and condyle.

Mary Anne M'Loughlin, aged 34, was admitted into Steevens' Hospital on the 10th May, 1853, presenting a tumour occupying the right side of the lower maxilla, and extending from within a few lines of the symphysis to its angle. Upon examination, it became obvious that this tumour was an enlargement of the bone from a growth originating within the cancelli, and which had expanded its walls. The substance within had, as is usual, grown chiefly upwards through the alveolar cavities, from which the teeth had previously fallen out, and as it increased, had caused absorption of the osseous tissue, until nothing but a partial thin shell of bone remained, thereby accounting for the soft spongy feel the tumour yielded

on pressure. Laterally the enlargement extended considerably; internally it bulged into the mouth beyond the mesial line, pushing the tongue to the opposite side; externally it formed a large prominence, over which the skin was tightly stretched. The surface of the tumour was flat, and was formed of a soft granular mass, of a reddish colour, being the growth which had sprung from the cancelli and now occupied the previous situation of the alveoli. On the outside of the cheek there was an elevated point, over and about which, for some extent, the skin was red and inflamed, threatening, as it were, to ulcerate; this spot conveyed a very deceptive feeling of fluctuation. Almost all the teeth had disappeared; only two or three remained in front, and these were perfectly loose.

The patient could give but a very imperfect account of the origin and progress of the disease. She stated that, to the best of her recollection, it first commenced two years ago as a "small lump" on the right side of the lower maxilla, and which was quite perceptible within the mouth, and that she attributed it to the pre-existence of an unsound tooth. She said that at first she experienced very little pain or inconvenience from the tumour, but that latterly the pain had become so severe as to deprive her of sleep, and that recently she had lost flesh and strength, and felt her health generally much impaired.

The extent of the disease having been accurately ascertained, and the feasibility of excision of the bone established, the plan of the operation was laid down, and it was carried out in the following manner:—The patient being seated on a chair, chloroform was administered so as merely to blunt sensibility during the first period of the operation—the incisions through the skin. Its further employment was then abandoned, upon the ground of the double danger of inhaling it in the sitting posture and of any blood trickling into the larynx. The two front incisor teeth being now drawn, the head was firmly supported, and a perpendicular incision was made through the lower lip, a line or two to the left side of the symphysis, commencing below the red border so as to leave it intact, and terminating beneath the chin. From the termination of this incision another was carried backwards along the outer side of the tumour, corresponding with the lower border of the bone, and ending at the angle. From this a third incision was then made to run upwards along the posterior edge of the ascending ramus as far as the lobe of the ear. The flap thus formed was rapidly dissected up, and the mucous membrane of the cheek was freely slit. A fine hand-saw was now applied exactly to

the symphysis, and was worked until the bone was deeply grooved. Its division was then completed by means of a strong forceps, the knife having been previously introduced behind the bone, to allow of the easy insertion of the inner blade. The next part of the operation was to divide the ascending ramus midway between the angle and condyle; and this was done by cutting through the masseter muscle down to the bone, and applying the saw and forceps, as was done in front. The bone being now completely separated, the tumour was dragged downwards and outwards, so as to put the parts attached to it as much on the stretch as possible, and to withdraw it from its vascular relations. The attachments were then divided cautiously, care being taken to keep the edge of the knife close to the tumour. The hemorrhage during the operation was remarkably slight, the only vessels requiring ligature being the facial and a small branch in the upper part of the wound; the former was not divided until the last stroke of the knife was made which finally separated the tumour, when it was immediately seized and tied.

A couple of dossils of lint, to each of which a thread of silk was attached, were then placed along the bottom of the wound beneath the border of the tongue, and the flap of skin was laid down, and when the patient was replaced in bed the cut edges were adjusted as evenly as possible, by means partly of the twisted and partly of the interrupted suture, with the necessary adjuncts of adhesive plaster, a pad of lint, and a bandage.

It is unnecessary to enter into the minute details of this case as it advanced daily towards recovery; it is sufficient to state that its course was marked by a striking exemption from any constitutional disturbance, and by a remarkable activity in the reparative process. In three weeks after the operation the wound was completely healed, with the exception of a small opening in the centre, through which the saliva and the fluids escaped, and the ligamentous band which was to supply the place of the bone was rapidly forming. In three weeks more she was discharged from the hospital, no remains of the operation existing save a small fistulous opening. The ligamentous band had assumed a cartilaginous consistence, constituting a firm border; she could eat bread and substances possessing considerable solidity, drink freely, and articulate with surprising accuracy; her health, too, had greatly improved.

The lint which had been inserted into the wound was removed in twenty-four hours after the operation, its withdrawal

being easy, owing to its saturation with saliva, and on the fourth day all the needles and sutures had been taken away, the former having been removed in forty-eight hours. By far the greatest portion of the wound healed by the first intention; the central part only suppurated, where the skin from being thin and puckered did not admit of perfect coaptation, and where, from the constant passing of the fluids from the mouth through it, union by adhesion was rendered impossible. The only inconvenience complained of by the patient was the want of proper adaptation of the portion of the lower jaw that remained to the corresponding side of the upper one, which resulted from the action of the muscles drawing the anterior extremity of the bone inwards or towards the right side.

This woman was heard of four months after the operation. No return of the disease had manifested itself; she was in the enjoyment of excellent health, and seemed to experience very little inconvenience from the loss she had sustained.

Examination of Tumour.—Upon slitting the tumour longitudinally through the centre it was found composed of a soft yielding structure (possessing, however, considerable resistance to the pressure of the finger), infiltrated with serum, of a whitish colour for the most part, studded with small reddish dots, and interspersed with spiculæ of bone. The circumference was formed of a very thin shell of bone, through which the knife cut with ease; it was deficient in some spots, particularly at the place which had formed the prominence on the cheek; here the bone had been completely absorbed, allowing the substance within to protrude. It was obvious that this shell of bone, which thus lay spread out around the tumour, was the outer and inner wall of the maxilla, which had become expanded into a thin plate by the pressure of the growth which sprang from the cancelli.

Upon looking closely into the diseased mass it appeared to be of a fibro-cellular character, resembling a honeycomb structure condensed; the areolæ were superficial, and in each lay a small roundish vascular body attached by a pedicle; these constituted the coloured dots which were scattered over the cut surface. This morbid specimen appeared to me to differ from any variety of osteo-sarcomatous tumour I had before seen; nor am I able to discover in books any description of an exactly similar disease in the lower jaw. In the excellent treatise on the Bones by Mr. Stanley, eight varieties of morbid growth from the lower jaw are described, but none answers to the characters just detailed; and in Mr. Paget's admirable

work on Surgical Pathology, recently published, no mention is made of any growth of the kind in the above situation.

In some respects this specimen would appear to correspond with the tumour termed "myeloid" by Mr. Paget, many kinds of which are met with in the lower maxilla, but close inspection clearly proved it to be of a cystic nature, and entitled it to be placed under the class "sero-cystic sarcoma," or cysto-sarcoma. Under the designation of "proliferous cysts with vascular growths from their internal surfaces," Mr. Paget describes a form of growth composed of cysts with intra-cystic vascular bodies, and which appears to me to accord pretty accurately with the characters of the foregoing morbid specimen. This specimen was examined with the microscope by Dr. Lyons, and he gave it as his opinion that the growth was perfectly benign, being an example of sero-cystic disease, the "solids being in the maximum." I regret I cannot represent this very interesting, and, as I think, rare tumour of the lower maxilla by an engraving, not having been able to procure a competent artist to make a drawing of it while in the recent state.

It is not my intention to occupy space in detailing the various plans of operating, and the many modifications that have been adopted or proposed by different surgeons from time to time, some of which are objectionable, or possess no particular recommendation. The method described in the foregoing case is that now usually pursued, and it has the double advantage of simplicity and facility of execution. I shall, therefore, merely consider the points worthy of more especial notice in the operation according to the method described. These are, first, the incision through the lip; second, the stage at which the facial artery should be cut; third, the easiest and quickest method of dividing the bone; fourth, the method of turning out the tumour. The advantage of leaving the red border of the lip uncut, instead of, as was formerly done, slitting it completely through, is obvious; and while it adds so much to the appearance, and facilitates the even adjustment of the cut edges beneath, it does not in the least degree render the operation more difficult. Simple as this modification is, attention to it will be found of great advantage.

The particulars relative to the division of the facial artery are, however, amongst the most important in connexion with the performance of excision of the lower jaw. All surgeons who have had experience in this operation admit that the amount of hemorrhage that occurs, and the degree of trouble it gives, depend on where and when this artery is divided.

When it is cut while the knife is being carried through the integument along the outside of the tumour, a good deal of blood may be lost before the surgeon can conveniently secure it; and if the incision shall run low down, corresponding with the border of the bone, when the vessel is divided it retracts within the areolar tissue beneath the jaw, as has been particularly observed by Mr. Cusack, and much time and trouble are expended in the endeavour to place a ligature upon it. Mr. Fergusson recommends that the knife should be carried lightly over the situation of the artery in making the incision along the tumour, and to avoid cutting it until the flap is being raised, when it can be secured by a ligature, or commanded by the finger of an assistant. Mr. Cusack has experienced so much annoyance by the retraction of the artery within the areolar tissue, when it has been divided low down, that he advises the incision to be always run a little above the border of the bone, so as to avoid cutting the artery in the notch. In the case related, both precepts—that of carrying the knife lightly over the situation of the artery, and running the incision above the lower border of the bone—were observed; and, most fortunately, the vessel was not cut, as already stated, until the last stroke of the knife was made, which saved much bleeding and delay during the removal of the diseased part.

As to the easiest and quickest method of dividing the bone, I think the plan adopted in the preceding case, if not the quickest, is the easiest for most persons, viz., grooving the bone with a saw first, and then clipping it through with a forceps. Some persons, who feel confidence in the strength of their hand and arm, prefer the employment of the forceps alone: few instruments, however, will be found sufficiently powerful to bear the degree of force that must thus be necessarily exercised upon them; and the shock to the parts, and the violence done to the patient thereby, are tenfold what otherwise would be. The only forceps fit for effecting division of the jaw bone, without previous use of the saw, is that invented by Mr. F. L'Estrange, of this city, whose many ingenious and useful surgical inventions have reflected such high credit on his mechanical skill. The blades of this instrument are so constructed as to come asunder and to admit of the separate introduction of the inner, and it leaves a perfectly smooth and even cut. Formerly the chain-saw was a favourite instrument for dividing the bone, and in the hands of those accustomed to its use it seemed to have worked in many instances with admirable efficiency. There are, however, some

objections to its general adoption: in the first place, a good deal of practice is required before the instrument can be properly employed; secondly, it is apt to break; thirdly, no matter how well it may be made to work, its action is comparatively tedious. The best method of dividing the bone, under almost all circumstances, I think is that of grooving it first with a small hand-saw, and then completing its division with a forceps. This is the plan recommended by the late Mr. Liston, and at present adopted by Mr. Fergusson. To render this method, however, quick and easy of execution, particular regard must be paid to the description of saw employed. If the instrument be clumsy and its teeth coarse, to make it work smoothly and with precision is impossible; the jaw being so movable, and the space so confined in which—especially in division of the ascending ramus—the saw has to be worked, that much difficulty and delay are experienced in making the necessary impression on the bone. The saw constantly slips and hitches, and becomes locked; and nothing can be more embarrassing to the operator, and painful to the bystanders to witness, than such ineffectual efforts to accomplish what may be looked on as the principal part of the operation.

A little reflection will render it evident that, considering the mobility of the jaw, the density of the bone, and the limited movement which can be given to the saw in consequence of the confined space in which it has to work, the instrument must be fine if it is to work smoothly and efficiently. In order to put these points to the test, I experimented with different kinds of saws upon the lower jaw in the dead subject, and I soon became impressed with the conviction that those commonly employed are far too coarse for the purpose; and that the finer the instrument, consistently with the necessary degree of strength, the better calculated it is for dividing the bone easily, and without hitching. The saw I found to cut the bone with greatest ease and least hitching was the kind which is used in the arts for cutting ivory or iron. It consists of a slender slip of steel with a finely serrated edge, and which is stretched tightly and fixed in a frame furnished with a handle. This instrument I found to pass through the bone with great ease and with surprising rapidity; but it was obvious that its shape was quite unsuited for the operation. When it had gone a certain depth the anterior extremity of the frame was found to tilt against the upper edge of the bone, and thus it restricted the sawing movement. I also found it inconvenient in sawing the ascending ramus high up; for in consequence of the manner in which the part is situated, being below the level of the

bony prominences in its vicinity, not much more than the anterior third of a small saw can be brought to act upon it, and the description of instrument under notice, owing to the way in which the blade is set, is quite unsuited for sawing unless its centre is fairly laid upon the part.

The saw which seemed to me to work most efficiently, and to be best adapted to the particular circumstances of the operation, was one made by Lüer, which I used in the case recited. This saw is constructed with a movable back, which terminates within about an inch of the extremity, and is deeply grooved to receive the upper border of the blade. When the back is elevated, the blade, owing to its thinness, is perfectly pliable, but when fixed in the groove it is quite firm and resisting, except at its extremity, which is narrower than at the handle, and slightly convex. The teeth of the instrument are very fine. The great advantage of this description of saw, independently of the fineness of its teeth, is, that the back being movable, allows it to pass to any depth through the bone. I also found that, owing to the shape of its extremity, I was able to act on the ascending ramus where it lies deep with more freedom than with any other kind I tried. The instrument I used was of very small size, the blade being hardly three inches in length; but I think that one a size or two larger would answer the purpose better[a].

I have thus entered minutely into the step of sawing the bone, because it is obviously the chief part of the operation, and one which, in consequence of inattention to the kind of instrument used, and other particulars, is so frequently accomplished in an awkward and imperfect manner.

The forceps employed for clipping the bone through after being grooved need not be very strong, as a slight force will effect the separation; but its blades should be narrow, so as to admit of their easy introduction.

The fourth point for consideration—the method of turning out the tumour—is one of very great importance; for it is in this step of the operation that serious hemorrhage is apt to occur unless caution be employed, and one or two precepts observed. The bone, as has been described in the case, should be divided beyond each end of the tumour, and this should

[a] Mr. Trant, who has contributed to surgical art some excellent instruments, has recently invented an ingenious one for sawing through the lower jaw. It consists of a curved blade which is passed behind the bone, and is then made to describe a segment of a circle round it rapidly backwards and forwards by means of a wheel, thus working in a semicircular direction. I have not had an opportunity, however, of seeing this instrument applied in practice.

then be drawn downwards and outwards, so as to remove it from where the vessels lie: the knife is then to be insinuated with the back turned inwards and the soft parts divided, care being taken to keep the edge close to the tumour or bone. The attachments of the internal pterygoid muscle, the mylo-hyoid, and the mucous membrane, are thus separated at their insertion, and there can be no fear of encountering any vessel of magnitude. If, however, this caution be not observed,—if instead of running the edge of the knife close along the tumour, it be rather turned away from it, and made to cut widely, some of the lingual vessels will be apt to be divided, and in separating the ramus the external carotid will be endangered.

In exarticulating the bone the steps of the operation are to be precisely what have been described, so far as the incisions and division of the bone in front are concerned. Had it been deemed prudent to remove the condyle in the case related, no more would have been required than to extend the posterior incision a little upwards.

In opening into the articulation, notwithstanding what has been said to the contrary, I believe it should be made a rule always to cut into it in front, and to keep the knife as close round the condyle as possible, which are the securest means of avoiding the internal maxillary artery. Mr. Cusack insists particularly upon the prudence of opening the joints in front, and recommends the use of a probe-pointed bistoury for separating the attachments of the condyle after it has been laid open with the scalpel.

Mr. Fergusson, on the contrary, seems to consider it quite immaterial in which direction the articulation be opened, and apprehends little danger of the internal maxillary artery being wounded in any case if the knife be kept close upon the condyle. With the greatest deference, however, for the statement of so high an authority, I think it impossible, considering the vascular relations of the condyle, that the articulation could be opened in any other direction than from before without almost certain danger to the internal maxillary, and, if great caution be not observed, perhaps to other vessels besides. Another point worthy of consideration is the question as to whether the ramus should be sawed through, and the tumour removed (just as in the case recorded), before the condyle be exarticulated. Mr. Cusack, in the cases upon which he operated, generally found the bone so involved in the tumour as not to possess sufficient resistance to enable him to use it as a lever; accordingly, he was in the habit of first dividing the ramus above the angle, and then, seizing the remaining portion with

a strong forceps constructed for the purpose, he forced the head of the condyle forwards, and cutting upon it opened into the joint. Few operators, however, adopt this procedure, seeming to view it as unnecessary, and only causing delay in the operation. No doubt, this double step has the appearance of unnecessary trouble and delay, but I feel confident that in the majority of cases in which we are called upon to operate, its observance will generally tend to facilitate the operation, and to render it safer. It is generally directed, that when the bone is separated in front its divided extremity is to be seized, and the side of the jaw used as a lever by which to throw forward and twist the condyle. But how few cases do we meet with in which the bone possesses sufficient resistance to allow of its being used as a lever? Patients seldom apply to have the operation performed until the disease has advanced so far as to deprive the bone of nearly its entire firmness. Had exarticulation been attempted in the case recited, how could the side of the jaw have been used as a lever, seeing that it had degenerated into the softened mass which constituted the tumour? In such a case the diseased part should necessarily break down, thus involving the operation in confusion, and giving it a clumsy and unsightly aspect. Again, if the tumour be large, very little effectual purchase could be made upon it, as long at least as the muscles and other soft parts retain their attachment to it; and to separate these before the bone is disarticulated (as is usually done), where the tumour extends much inwardly towards the base of the tongue, would lead to the danger of wounding some large vessels; whereas, no matter how far it may bulge inwards, if the bone be divided first above the angle, the mass can be drawn downwards and outwards, as already described, and its attachments cut through with much less risk of hemorrhage.

In order to ascertain the comparative advantages of both methods of operating, I tried them on the dead subject, and I found I could exarticulate the condyle with far greater ease when the ramus had first been sawn through than I could when the continuity of the bone was preserved. When all is removed except the small portion of the ramus supporting the condyle and coronoid process, a comparatively free space is left in which the surgeon has to use his knife, and with the assistance of the strong forceps already alluded to, this piece of bone will form a better lever by which to thrust the head of the condyle forward than the side of the jaw will in most instances. The only disadvantage connected with this plan is the delay that may be experienced in sawing through the ramus;

but, as already remarked, if a saw properly adapted for the purpose be employed, very little time will be lost in effecting its division, and any that may occur will, I think, be more than compensated for by the greater facility with which the condyle will afterwards admit of exarticulation. The recommendation of this plan, however, is only urged in the generality of the cases of osteo-sarcomatous diseases submitted to operation. Doubtless many instances of disease demanding excision of the jaw are to be met with in which its adoption would be needless.

The foregoing observations relate merely to excision of one half of the lower jaw, but operative enterprise has gone much farther than this. Surgeons, emboldened with the success attending its partial removal, have not alone excised the chief part of the bone, but have even accomplished the brilliant achievement of taking away the entire jaw from both articulations. It is true that many of the cases in which the entire inferior maxilla has been removed have been merely instances of necrosis; but some have lately been recorded in which the operation was performed for osteo-sarcoma, and with such results as at once to establish the practicability, safety, and success of this bold procedure.

ART. XII.—*Selections from the Unpublished Manuscripts of the late* ABRAHAM COLLES, *Professor of Surgery to the Royal College of Surgeons of Ireland.* Edited by his Son, WILLIAM COLLES, F.R.C.S.I., Surgeon to Steevens' Hospital, &c.

(*Continued from* p. 71 *of this volume.*)

No. 3.—SURGICAL DISEASES OF THE NECK AND THROAT.

FOR the present communication I shall select a few interesting cases of disease affecting the various parts connected with the neck and throat, and I will add to them the notes of a clinical lecture (existing in my father's handwriting) which will, I trust, be found not devoid of interest or instruction.

CASE I. *Cancer of the Tongue.*—Nov. 5, 1807. John Williams, aged 50, farmer, five months ago perceived a small blister on the left side of his tongue, opposite the second molar tooth. This broke in a fortnight. He occasionally feels a scalding pain, which continues a few minutes, and is removed by a discharge of clear water; there is pain in the left ear and ramus of the jaw to the temple brought on as often as

he attempted to swallow; pain extended to the middle of the tongue. After a succession of blisters he perceived a lump to form on the tongue, which gradually increased. On inspection, the gums of all the teeth of the left side are swollen and loose, an incisor of the right side is loose, gums also swollen; on the left side of the tongue is a broad ulcerated surface, presenting a fungous appearance, with some patches of yellow; the thickness of this side of the tongue is increased to three times its natural state; the swelling passes to the right side of the tongue, but is not adherent to it; is not hard at the top; the disease spreads very little beyond the middle line; the right side perfectly healthy; there is a copious discharge of thick saliva from the mouth; can only swallow flour or bread steeped in milk; he says his health is good; appetite good; sleep disturbed by the discharge; pulse 74; no enlargement of lymphatic glands to be felt, but there is a fulness and hardness from the base of the chin half way to the os hyoides on both sides. 7th. Operation: (not detailed). The tumour is of a dirty brown colour, like a slough; he has had a constant flow of blood since the operation. 10th. Says he can swallow better; about one-third of the anterior part and a small portion of the external side of the tumour sloughed. 11th. Some blood came from his mouth. 22nd. A second ligature was passed round the base of the tumour.

Dec. 1st. It has now sloughed off; only a very small portion of its centre remains; the entire left side of the neck is occupied by a firm swelling, and a firm tumour rises in the mouth close to the inner surface of the jaw, larger than a walnut, and this pushes over the tongue; the ulcerated surface of the tongue looks healthy. 5th. About 3 o'clock this morning a smart hemorrhage from the mouth took place, amounting to one quart of blood; it was stopped by a saturated solution of alum; on removing the coagula a smart bleeding occurred; the ligature, which still remains, was not tight on the base of tumour; it was cut across; hemorrhage ceased. 6th. Had a return of hemorrhage at 10, again at 4 o'clock; it was restrained by dossils of lint dipped in oil of turpentine. He seems quite exhausted from loss of blood. (Case unfinished.)

Case II. *Malignant Tumours of the Throat.*—May 6, 1809. Francis M'Donnell, admitted. Three years ago a small tumour appeared on the right side of the throat below the lower jaw; he had sore eyes a month before; by medicine he says the lump was scattered into a number of smaller lumps; they extended from the mastoid process of one temporal bone to the

other; they have been gradually increasing; at present a great mass of swelling occupies the right side of the neck from ear to ear, and half-way downwards; less extensive on the left side, where there are many distinct glandulous swellings; on the right side distinct tumours can only be felt at the edge of the large mass; two glands in right cheek are enlarged and hardened; glands down to clavicle are enlarged; no enlarged glands to be perceived elsewhere. He suffers great inconvenience when at work, as he cannot turn his head, and he feels pain in the tumour when he catches cold; on stooping and rising up he cannot distinguish objects, and fire seems to shine before his eyes; has headach; cannot run on account of shortness of breath, but there is no difficulty in swallowing. 14th. Salivated; not improved; complains of weakness; pulse 120; tumour on the left side somewhat smaller, on right not altered.

Case III. *Malignant Tumour.*—Dec. 22, 1802. Pat Mullen, aged 33, admitted. From an inch behind the right ear to the chin the forepart of the neck is filled up by a tumour, which occupies all the hollow to a level with the lower jaw; the surface of the tumour is not rugged; is of a red colour, approaching to livid; does not give any sensation of fluctuation; on the left side considerable hardness but little elevation is to be perceived, except under the jaw, where there is a large, hard tumour, not discoloured; on the right side the tumour is of a stony hardness, and quite immovable; has pain in it like the pricking of pins; this is constant for two or three days; has much impediment in chewing and swallowing; a fungous excrescence stretches more than half-way across the tongue, and rises a quarter of an inch above its surface; the cheek is thickened; he states that last June he first perceived a small kernel in the side of his cheek, quite movable; in two months after, he felt soreness in his throat; the excrescence from the tongue began in September; his appetite is good; no night sweats. 25th. Complains of strangling in the throat; cannot lie horizontally in bed, dreading loss of breath.

Jan. 12th, 1803.—Midway between the chin and chest ulceration like a long fissure commenced.

Feb. 1st. Ulcer size of the palm of the hand; quite superficial; has a yellow, adhesive discharge like the buffy coat of the blood; flesh and strength declining.

March 1st. Sore extends; quite superficial; pulse 126; sweats. 16th. Died in the evening.

Case IV. *Malignant Tumours of Neck.*—Anne White, ad-

mitted July 3, 1802; five months ago fell on the right side of her face; a swelling formed in the malar bone, which gradually subsided; says the entire side of her face and neck was black after the fall; three weeks after, she perceived a swelling behind the right ear, then one in front. At present there is a small, distinct tumour before the ear, near to the zygomatic process; a large tumour fills up all the space occupied by the parotid gland, and reaches down to the clavicle, becoming divided as it descends; a large tumour also below the middle of the clavicle; left side of the face and neck affected in a similar manner; says the swelling began on the left side a month or six weeks ago; some distinct tumours are to be felt on the sides of the cervical vertebræ,—these give her much pain at times; she feels much difficulty in swallowing, and in performing the rotatory motion of the head; is easier since she had a warm bath. Appetite good; no thirst; tongue white; pulse 100. She died suddenly, after taking a glass of wine. All the lymphatic glands were enlarged in the vicinity of the neck.

Case V. *Dislocation of the Spine.*—July 13, 1811. Michael Kennedy, aged 24: three months ago, leaping from a cart in motion, his coat was caught, and his head came to the ground; he lay for some time insensible; he remained in bed for three weeks, unable to move on account of severe pain in the head and neck; no pain whilst his head lay on the bolster, but the slightest attempt to move it caused great suffering; for three weeks he could not open his mouth except by drawing down the lower jaw with his fingers; his powers of swallowing impaired—fluids making a noise going down; solids stopping opposite larynx—rejected by coughing; no pain or loss of motion in upper or lower extremities. A fortnight ago he applied for admission. His chin was turned towards the left side, and was held nearly opposite to the articulation of the left clavicle with the sternum; a fulness visible on the back of the neck, near the upper part, and on the right side of the spinous processes; the nature of it could not be ascertained to be caused by displacement of the spinal process.

He was made to sit on the ground, his shoulders resting against the knees of a person sitting behind him; extension was made by one hand under the chin and another on the occiput; counter-extension by the knees; a considerable degree of force was employed, and a slight rotatory motion attempted at the same time; after making these efforts two or three times, the spinous process of the displaced vertebra could be distinctly

felt, although previously the displacement was judged of only by the combination of symptoms; three or four hours after these attempts he felt the right arm as if burned with nettles, and he lost the power of using it; in a few days he complained of numbness of the left side and loss of power; he now walks with an unsteady gait, left arm being moved as if slightly paralytic. (Unfinished.)

Case VI. *Foreign Body in the Throat.*—May 28, 1813. A servant boy, aged eight years: six weeks ago, while playing with a pop-gun, he filled the barrel, which was a goose's quill, with raw potatoes; this he had in his mouth, and, falling from the window-stool, he swallowed it. The child was observed to be very black in the face, making efforts to swallow or vomit; he tore open his waistcoat, to get air for breathing, and he continued so for an hour, almost dying; he then became better; during the first week he was ill with continued fits of coughing, which his parents considered chincough; he makes croupy murmur in inspiration; inspiration more difficult than expiration; he has grown thin; disinclined to eat, from suffering great pain in swallowing; any attempt to turn the head round induced the cough, which seemed relieved by swallowing cold water; after first week he seemed better.

On the twenty-eighth day, or fourth Sunday from swallowing it, he threw up the quill; on laughing this brought on a cough, by which the quill was forced into his mouth; no vomiting attended it; through the entire of the month he pointed to the throat, a little above the top of sternum, as the seat of his pain; the quill was a little softened when rejected, but on drying resumed its original characters.

Case VII. *Bone in the Throat.*—1800. John Harvey, aged 53, eating rather greedily, thought he swallowed a bone, which stuck in his throat opposite the left amygdala. Three days after, he could not raise his head, nor open his mouth sufficiently to admit inspiration; ropy saliva flowed constantly; an undefined swelling was felt at both sides of throat; a probang was passed without striking on any foreign body, or giving any relief; he could not let down even fluids the last twenty-four hours. On this evening he got up with difficulty a small quantity of thick, tenacious pus, after which he got down fluids, and in a few days could swallow as previously.

Case VIII. *Ulcerated Throat.*—E. Brennan, aged 30, admitted Jan. 27, 1810; two years ago was affected with soreness of his throat; he used a decoction of woods, which

seemed to have the effect of healing the throat, but not perfectly, when he took some medicine supposed to be corrosive sublimate, which caused his mouth to become sore, but his complaints were not much relieved. Nine or ten years ago he was affected with what appears to have been a superficial, extensive ulcer of the thigh, healing in one part, and extending in another. Eight years ago a similar but smaller ulcer appeared on the left fore-arm; and about three years ago another, similar, on the left eyebrow. Four or five years elapsed before the ulcer on the thigh healed; that on the fore-arm remained for two years; the cicatrix left by each of these ulcers is of a silvery-white colour. At present the lining of the palate, the remains of the velum palati, and the back of the pharynx, are occupied by an ulcer; a part of the bones of the palate have been destroyed, and an opening to the nose exists in the centre of the palate. The ulcer is very unequal; its surface in some parts is covered with a thick, yellow matter; little or no preternatural redness extends beyond the edges; on the anterior surface of the remains of the arches of the palate is seen a white line resembling a former cicatrix. The ulceration may be seen extending into the nostrils; the discharge from the nose is sometimes mixed with blood. (Unfinished).

Case IX. *Ulcerated Throat.*—Dec. 2, 1801. Richard Bullen, aged 22: three years ago he first perceived the back part of the uvula swollen, and painful in swallowing; this, he said, broke in a month, and healed, leaving a fissure in the palate, causing him to speak through the nose. For two years it remained well, occasionally swelling in frost and cold. Twelve months ago the ulceration began again behind the uvula, in back of the pharynx. Now all the space behind, from side to side, down as far as can be seen, is occupied by a broad ulcer, with uneven surface, ragged edges, whitish, sloughy surface; deep redness round; no pain in swallowing, though some of the fluids pass by the nose; never had venereal; general health good. Ordered a lotion of one grain of corrosive sublimate to an ounce of water.

Dec. 31. Ulcer much improved.

Case X.—*Ulcerated Throat.*—July 14, 1802. Arthur Clarke got me to look at a man's throat: one amygdala ulcerated, the uvula destroyed by ulceration; the anterior arch between uvula and amygdalæ ulcerated. These ulcers had much of the lardaceous or venereal appearance, but differed from syphilis in that they were surrounded by redness which

resembled erysipelatous inflammation, and which spread to a considerable distance from the ulcers; said his throat had been sore two months from cold, taken when threshing; never had venereal; he is thirty-six years of age.

Remarks.—I am not thoroughly satisfied with the diagnosis here laid down; in the following cases there is the same erysipelatous inflammation.

I have seen half a dozen cases of this kind; they all occurred in the lower ranks, and in some connected with cold.

No surgical writer has mentioned the disease, its discrimination, or cure.

Mercury has been used in all the cases I have seen, and has cured them,—a stimulating gargle assisting.

Case XI.—*Ulcerated Throat.*—Nov. 22, 1803. Hugh Cremor, aged 21, in February first felt soreness in his throat, which continued for three months, when it ulcerated. Has had the ulcer healed two or three times by medicine. He took corrosive sublimate, by which his mouth was made slightly sore. Six months after, it again ulcerated. Used no medicine. November—Ulcer occupies the left side of the velum; pendulous palate all ulcerated except in front; the posterior fauces so on the right side, less on the left; edge of ulcer in view; the surface dry, as if a thin crust formed over it; the amygdalæ not enlarged; two glands on the right side of the neck as large as a walnut; complains of pain in swallowing, particularly fluids; finds greatest pain on awaking at night, his throat is then so dry; general health good; never had venereal. Surface of ulcer lardaceous, irregular; edges rose colour. Dec. 15th. Mouth sore; ulcers improving.

Case XII.—*Ulcerated Throat.*—January 5th, 1810. W. Travers, aged 22, four years ago had a sore throat, which continued for three months, and was healed by some sharp wash which blackened his teeth; does not know how his present complaint began; cannot breathe through the nose; suffers no pain; discharge from nose as in all others; has no sense of smelling; hearing little if at all affected; he has some little difficulty in swallowing. On inspecting the throat, no opening from the posterior nares can be seen, nor can an instrument be passed from the nares; his attempts to blow his nose evince that no passage exists. Marks of cicatrices at the posterior part of the pharynx, to which the soft palate appears to have adhered; the arch on each side still to be seen stretching up to the middle point of the cicatrix. A trochar for puncturing the

bladder was passed into the nostril, and the opening made by it enlarged by an incision from the mouth, and a seton passed from the nose to the mouth, and retained for some weeks; the edges were destroyed by lapis infernalis. His breathing was not altered by any of these remedies, and he left hospital after two months.

NOTES OF A CLINICAL LECTURE ON SCROFULOUS SORE THROAT[a].

No author has given an account of this disease; it is merely mentioned when treating of the venereal disease affecting the throat.

No age seems exempt from its attacks. Mr. Colles never saw it occur under ten years of age. The seats of the disease are the palate, the tonsils, and nose. When it attacks the velum palati it destroys the entire of it, and if neglected, the bones will also suffer. Mr. Colles cannot describe the manner in which it makes its first appearance, never having had an opportunity of seeing the disease until ulceration had commenced. When this process has taken place the surface is covered with a yellow, tenacious discharge, the edges are ragged and irregular, and the ulceration is superficial; there is a diffused redness generally spread around it, along the neighbouring parts, and this diffused redness is the principal diagnostic between it and the venereal sore throat. In this the redness is of a lively rose colour, or such as we observe in erysipelas; in the venereal it is more of a dusky hue, or rather a copper colour; the two diseases strongly resemble each other in many respects: for example, the diffused redness, the lardaceous appearance, &c. The difficulty of distinguishing the two diseases is increased by the effects of medicine, for mercury will heal up the scrofulous sore throat, and it may again break out, and again heal up under the use of mercury. When we are in this state of indecision,—and it is a matter of much moment, as in a married man who had previously to his marriage been affected with lues,—then our best practice would be to wait a little, and see whether other venereal symptoms will appear, taking care, however, not to allow the ulceration to make too great ravages in the throat. When there is a relapse, the case will be clear, for the venereal ulcer either affects the same part again, or else the directly opposite side, while this does not again attack the same part, but affects the neighbouring parts; or, as the patient expresses himself, "breaks new ground."

[a] Delivered in 1807. Reported by Mr. Scott.

But there is one circumstance which marks the distinction most correctly; that is, when the ulcer heals, it leaves no cicatrix, while this leaves a very peculiar kind of white, shining cicatrix; besides, in this the disease spreads widely, and heals up in one part while it is breaking out in another, so that the whole top of the pharynx shall exhibit proofs of having been at one time or another attacked.

The saline preparations of mercury answer best in the cure of this disease. They should be pushed so far as to affect the gums slightly, and this effect should be kept up for some time. Corrosive sublimate, in solution, in small doses, and largely diluted, will be found to agree best with scrofulous habits.

The cases and lecture here recorded seem to me worthy of attention.

The first case of cancer of the tongue may serve as an example of a termination of which few or no examples are recorded,—where, though the removal of the diseased portion by ligature may secure us against the occurrence of immediate hemorrhage, yet it does not, as is generally supposed, insure us against its occurrence in the second stage, or that of sloughing.

The malignant disease of the glands of the neck, described in the next case, is one which, in its early stage, may be mistaken for a scrofulous or other affection of these parts, and requires careful examination and attention to distinguish. We also find here an example of a tumour remaining stationary or indolent for a number of years, and then suddenly assuming the character of malignancy. This case was that to which my father was in the habit of recording the termination in his lectures,—where the man left hospital, was walking home, and had arrived at Ballybough Bridge (about three miles from the hospital), when he suddenly threw up his hat in the air, exclaiming, "By ——, I am dead!" and fell down a corpse.

The case of dislocated vertebra is one where we find the reduction or partial restoration of the bones does not always tend to arrest the tendency to paralysis, which is likely to ensue on compression of the spinal cord.

The possibility of a foreign body becoming impacted in the air-passages, and remaining there for a considerable time, was, we see, noticed long since; though in this case I find many arguments, which it is not necessary to repeat, adduced to prove the quill must have been in the trachea, and not in the œsophagus. It may here be remarked, that we have a number of cases recorded in which, after a time, the foreign body has

been expelled as if by the subsequent efforts of the parts, when an operation had, perhaps, been ineffectual; and again, several which either proved fatal or required an operation for their removal; but we still are in want of a criterion to judge in what cases, and at what time, an operation may be necessary, or the case left to the efforts of nature to expel the foreign body.

In this paper, however, I would particularly direct attention to the cases and lecture on that form of scrofulous sore throat which we see even in the present day frequently mistaken for venereal or mercurial. The patients present many peculiarities of the scrofulous constitution. In Steevens' Hospital they generally come from the hilly parts of the county of Wicklow, so that it is generally designated as the "Wicklow sore throat." We have also cases from the southern parts—Clare and Kerry. The treatment of this affection, however, has undergone some modification. Since the discovery of the efficacy of iodine and its compounds, we generally rely on some of them, and find we can heal this ulcer without resorting to the use of any preparation of mercury, which medicine has frequently been unjustly (I think) accused of causing this disease. There is a termination of this disease related in Case XII., where the opening between the nose and mouth became quite closed, so that no air could pass. The inconveniences are related in the case, as also the unavailing efforts to effect the slightest amendment by any proceeding we can adopt, and to which I also can bear testimony from experience. This is the more annoying to the surgeon from its apparent simplicity, and the facility by which it would appear, to one inexperienced, that the opening could be re-established and maintained; and it is not till after repeated failures he will begin to think it was not entirely to be attributed to inefficient surgery in former practitioners that this termination has not been more successfully combated.

Art. XIII.—*On Slow Pulse, occurring in the Progress of Fever*[a]. By Henry Kennedy, A.B., F.C.P.I., Physician Extraordinary to Sir P. Dun's Hospital.

It is almost unnecessary to commence my observations by stating, that in the great majority of cases of fever the pulse is quickened in the beginning of the disease: and it is of the first few days I am now speaking. Yet there are some very remark-

[a] Read before the Association of the College of Physicians.

able exceptions to this rule; for there is a class of cases, and I have notes of many such, in which for several days the pulse does not exceed 80. On the eighth, ninth, or tenth days, however, it becomes much quickened, and an attack, which at first appeared to be very light, has become most serious. All of these cases are alarming, and some of them fatal: they very generally occur in men, though I have met with them in females. This state of the pulse is one of the causes why at times the diagnosis of fever may be difficult; and it is a point about which we should be on our guard. As far as I have seen, it is common in private as well as hospital practice; and in the former, of course, we should be doubly on our guard. *En passant* I may observe, that the carriage of patients to hospital very frequently causes a diminution in the pulse,—not only in its strength, but also in the number of its beats. This, I presume, is due to the effects of cold; and a pulse which only beats 80 before the patient is put to bed will, in the course of a few hours, rise to 120 or 130. And here a *quære* may be put:—Have we not wrongly lost sight of a practice which was formerly used with the greatest success in certain cases—I mean the exposure of patients to the open air? I have been speaking of cases where, during the first days of fever, there was no rise in the pulse. I would now, however, direct attention to what may be called the middle stage of fever, during which the pulse frequently presents the peculiarity of being slow. This may occur under at least three different aspects, and possibly more, though I have not seen them myself. In the first, the fever is going on in the ordinary way, when symptoms of jaundice show themselves. Under such circumstances, the pulse, I believe, will almost invariably be found to be slow,—that is, beating about 80, or even less, in the minute; and this will be found to occur even when, in the first instance, it was very much quicker. This is not by any means a fatal class of cases, nor is it at all necessary that the jaundice should be at any intense degree to cause the state of pulse alluded to. Probably some detail of a case of this kind might not be out of place. I may here mention, that the great majority of the cases which I may have occasion either to allude to or detail in the following remarks; I have seen in the Cork-street Fever Hospital, under the care of Dr. George Kennedy.

Case I.—In October, 1846, a man named Dunn, aged about 56, came into hospital. He was at the time quite able to walk to the institution; he had a good deal of nervousness about him, and his illness was attributed to mental causes; he was five days ill; his tongue was as dry as a board; the pulse 80;

no sign whatever of jaundice. The following day—that is, the sixth day of his illness—he had some vomiting in the morning; about an hour after which he was seized with sudden collapse, and of so urgent a kind that it was thought he would have died in it. He got wine, by means of which he rallied, and in the course of the same day it was observed that his skin was becoming yellow. His motions were light-coloured, but not in a marked degree. Next day his entire body was yellow; no weak fit since; tongue still dry as a board; pulse 66, and full; he speaks strong. Following day, pulse between 56–60; tongue as yesterday; surface of body not so yellow; he sleeps a good deal, and lies on his side; vomits now and then. The next day pulse had risen to 76 full; tongue rather improved as to moistness, but now densely furred; bowels have become too free, and discharges of a dysenteric character, with blood; nurse says he forgets things very fast; skin this day scarcely coloured. From this day he did well, his pulse remaining steady at 76.

This was one of a class of cases of which I have now seen several, and all exceedingly like each other[a],—I mean as regards the state of the pulse, which in this instance fell as low on one day as 56, 76 being its ordinary beat. I need scarcely observe, that ordinary cases of jaundice are attended with slow pulse, as are also those cases which are known by the name of black jaundice, and which are so commonly fatal. Fever, then, when complicated with jaundice, may be looked upon as being usually attended with slow pulse.

A second state of things in which slow pulse occurs, in connexion with fever, is in that class of cases in which brain affection exists. This, of course, is well known as being now common in the hydrocephalus of childhood. It also occurs, however, and it is well to keep it in mind, amongst adults. On another occasion I have ventured to direct particular attention to this part of the subject. The cases I allude to are of a most insidious character, owing to the very slight degree of fever usually present, while at the same time they are unusually fatal. The pulse, in the first instance, is in such cases quick-

[a] A girl of 17 in the course of a very heavy fever, attended with sordes on tongue and lips, and also deeply jaundiced, had a pulse beating only 60 in the minute. During her convalescence this girl suffered more from violent pains in the feet than I ever witnessed either before or since.

Sweetman (all whose family were suffering from fever at the time) was admitted on the ninth day, deeply jaundiced, and affected with fever: the jaundice had appeared suddenly the day before. This man's pulse beat at 54 until he began to improve, when it rose to 62, at which it remained even when he was quite convalescent.

ened; it then falls, often not being more than 50, and again rises before the death of the patient. Of such cases I have notes of several in individuals ranging from fifteen to twenty years of age, the majority being females; but having already entered into this part of my subject at some length, I shall speak of it no further here[a].

To the third form of slow pulse I would now direct more particular attention; and, possibly, some detail of the class of cases I am speaking of will best illustrate its nature.

Case II.—Mulready, a tanner,—a trade which, I may remark in passing, suffers very rarely from fever,—was admitted, labouring under the disease, in June, 1850. He had been previously a very healthy man. His fever was unusually heavy, but he was not spotted. On the eighth day my attention was attracted by the state of his pulse, which beat in the minute only 48. At about this rate it continued three days, when it began to rise, and as it did so the symptoms all declined, the pulse ultimately reaching 78, and so remaining. This man had no head symptoms whatever.

Case III.—Kelly, a man aged 25, not a teetotaller, was attacked with heavy fever; complaining, at first, a good deal of his head. He had been seven days ill, and had vomited very constantly a large quantity of dark green stuff, at times almost black. His pulse was but 60, and very weak at the wrist. He had a few scattered spots on his chest. In this state exactly he continued for three days; the symptoms, however, not improving, and the vomiting still going on. His nights were very bad. Towards the last the pulse rose to 72, at which it remained until death. For four days previously he would not allow he had any pain in his head, nor indeed anywhere else, nor did the eyes betoken any marked affection of the brain. Towards the last he had also hiccup. I do not pretend to offer any conjecture as to the nature of this case: it is simply stated here as it afforded a marked example of a

[a] A bare allusion to what occurs in the event of crisis taking place is all that is called for here. I need not state that before it the pulse invariably becomes quick; then, as crisis goes on, it becomes slower and much fuller, and, finally, when the process is to terminate favourably, the pulse has fallen to its natural standard; and so, in the course of a very few hours, a pulse of 120 is reduced to 75 or 80. If it be not a misnomer, this is what may be called the natural or healthy progress of the disease. Crisis, however, I may state, is not confined to simple fevers, I have seen it in other acute diseases. I may refer here to a valuable paper by Dr. Read, published in the third volume of the Transactions of the Association of the College of Physicians, in which he speaks of the effects of the nervous agency on the pulse in cases of fever.

very bad form of fever, attended with a pulse ranging only from 60 to 72.

Case IV.—Flannery, a man aged 35, came in with fever and petechiæ; but, singularly enough, his tongue was all but clean. His pulse, while the spots were still out, was but 54: it rose as he approached convalescence. He never complained at any period of his head, but he had the most deadly weakness. He got wine early in the disease.

Case V.—Coffee, a delicate woman, aged 38, came in with her chest a good deal engaged, and labouring under fever. I could not ascertain well how long she had been ill, but it was certainly for more than a week. Her tongue was very dry and unusually rough. This woman made some complaint of her head. Her pulse for several days was but 60, but it ultimately rose as she became better.

Case VI.—A man named Mitchel, twenty-five years of age, from Galway, was admitted with so little apparently wrong that it was doubtful whether he should be taken in. In the course of three or four days, however, fever lighted up, and he very shortly after presented a very good specimen of nervous fever, mixed up with delirium tremens. It is particularly worthy of note, that during this state his pulse remained at about 66; for in any other experience I have had of similar cases, the pulse has been invariably rapid. This man had threatenings of a relapse, which, however, passed off. Before he left the fever ward, also, he had two well-marked epileptic fits. Possibly this state of constitution may have had something to say to the state of his pulse during his illness. When well, I should state his pulse beat under 70.

Case VII.—Smith, a young man aged 18, whose case presented many features of interest, had a pulse at 84, while his fever was to all appearance hopeless: amongst other symptoms I may mention a good deal of movement of the lower jaw, and an inability to put out his tongue. In this instance, I should state the brain was very much engaged. As he got out of the dangerous state his pulse rose considerably; that is, as he got better his pulse got quicker,—rather an anomaly, it might be supposed; it ultimately, however, fell to the natural standard.

Case VIII.—Bradshaw, aged 24, came in with heavy fever; his eyes much suffused; tongue red and furred: he was spotted, but not extensively. On the ninth day of his fever the pulse was 90, and dicrotous. He had some vomiting,

which increased, and was preceded by hiccup. At this period his pulse fell to 42, and so remained for about two days, when his eyes began to clear, his tongue to clean, though still remaining red; his pulse then began to rise, and reached 68, at which time he might be pronounced convalescent.

Case IX.—Rogan, a man aged 30, admitted labouring under a second attack of rheumatic fever, which presented all the usual symptoms, except that during it his pulse never exceeded 54. A souffle occupied the place of the first sound of the heart. When convalescing, this patient was seized with spotted fever, during which his pulse was rapid,—112, 120. He ultimately did well; and it was curious, as he convalesced, that he complained a good deal again of rheumatic pains, which did not, however, assume a regular attack.

Case X.—Donovan, a man aged 30, presented very heavy fever, with severe pains in his back and limbs; yet in the height of the attack his pulse beat but 50; as he got better it rose to 66. This is all the note I happen to have of this case.

Such are a few of the cases of which I have notes, and in which the pulse, while sickness was still heavy on the patient, was unusually slow. Cases where the pulse beats from 80 to 86 during the progress of the heaviest fever are very common; but though I have notes of many such, I have not thought it necessary to detail them. Whether this state of slow pulse arises from any peculiarity of the poison of fever,—as is not improbable,—or whether it is due to idiosyncracy, I shall not take on me to determine. To myself, it appears to be met with in fever more frequently than any peculiarity of constitution would account for; and hence I am inclined to think it is due to the nature of the fever itself. I have some recollection of having read an account of a sort of epidemic of fever in which slow pulse was very common, but I have not been able to refer to it.

From what precedes, a general idea has been afforded of the class of cases of fever I would more particularly now bring under notice. It will be observed, that the slow pulse occurred both in instances where spots were present and where they were not; but, speaking generally, the majority were not spotted, and when spots did appear they were but few in number. A similar remark applies to the state of the brain, which, while it was much engaged in some, in others it was, or ap-

peared to be, perfectly free. I may observe here, that I have known more than one instance in private practice where the greatest alarm prevailed on account of this very state of the pulse. While such cases cannot be said to be quite free from danger, it may, I think, be stated, that the great majority do well.

It is scarcely necessary to observe, that independently of the class of cases I have been speaking of, slow pulse is by no means an uncommon attendant of many cases of acute disease. I do not here speak of such a marked lowering of the pulse as has been already described as occurring in fever where the beat did not exceed 45 to 60, but I allude to cases of pneumonia, pleuritis, and peritonitis, where the pulse did not exceed 80; but, what is much more remarkable, I have now seen three well-marked examples of acute pericarditis in which the pulse did not exceed 80 beats in the minute: exceptional cases, to be sure, in a disease so very constantly accompanied by a rapid pulse, but still showing the possibility of such an occurrence, and affording a good example of that kind of family likeness—if I may so speak—which runs through all the acute diseases.

The study of the analogies which obtain between acute diseases, including fevers, is a subject deserving more attention than it has hitherto received. I think it will be found that a complete knowledge of any one of them—and more particularly, perhaps, of fever—gives a clue to all, and this in a much closer way than might at first sight appear. Thus, the slow pulse of fever of which I have been speaking is not, as already stated, confined to that disease; it certainly exists in some cases of pleuritis, pneumonia, and pericarditis, and there is little doubt it occurs also in scarlatina, small-pox, &c. As another example of what I mean I may state, that small-pox has ever been looked upon as the disease which affords an example of what is known as secondary fever, and this to the exclusion of all other acute fevers. Now, this is not correct; and I believe I was the first myself to put on record the fact, that certain cases of scarlatina afford as good examples of secondary fever as small-pox itself. But let us look for a moment to the important question of treatment; as, for instance, the administration of wine. I am sure it will be at once allowed that, in the giving or withholding this agent, we are to be guided by rules which apply to one and all the diseases of which I have been speaking; and that whatever be the points which guide us in giving wine in ordinary fever—and I refer to it as being our most common disease—apply exactly to the

other acute affections. It is anything but my intention to enter into a detail on this point; such would be quite out of place here: all I would do is to direct attention to what may be called a generalization in the study of the acute affections, by which, I believe, our knowledge of their natural history may be very much extended, and their treatment very much simplified.

Art. XIV.—*On the Local Application of the Vapour of Chloroform in the Treatment of various Diseases, especially those of the Uterine Organs; with the Description of an Instrument invented for this purpose.* By S. L. Hardy, M.D., Fellow of, and Examiner on Midwifery to, the Royal College of Surgeons of Ireland; Ex-Assistant Physician to the Rotundo Lying-in Hospital; Vice-President of the Dublin Obstetrical Society; Physician to the Institution for Diseases of Children, &c.

During the last few years in which chloroform has been brought so prominently forward as a valuable and powerful agent in mitigating suffering, the mode of using it has varied according to circumstances. In some cases inhalation of the vapour is preferred; in others the fluid is taken in the form of draught; and lastly, it is externally applied either alone or in combination with some liniment or ointment. Notwithstanding the great utility of chloroform employed in each of these methods, there are cases in which none of them are free from objection, nor can the benefit that is wished for be obtained by any of them with perfect satisfaction. A person may labour under a disease so situated as to be far removed from the influence of this medicine if used in ointment or liniment. A considerable time may consequently elapse before relief can be had, and therefore other remedies which may be more prompt or less troublesome are sought for; or perhaps, though decided and immediate relief could be obtained by inhalation of the vapour, there is an unwillingness to be deprived of consciousness or to be subjected to this plan of treatment. But, independent of any disinclination on the part of the patient, there may be insurmountable obstacles where cardiac or pulmonary disease is present, forbidding its use by inhalation.

That chloroform may be used with very great benefit to the patient without being inhaled, and so as to cause relief from suffering much more quickly than it does when applied in the liquid form, or in ointment or liniment, I have endea-

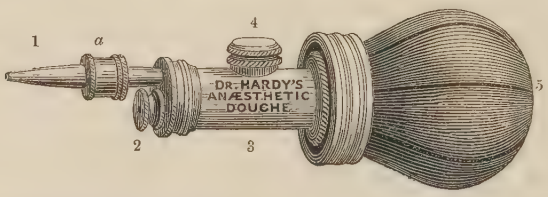
voured to prove by the local application of the vapour by means of an apparatus suited to the purpose. The short time which has elapsed since the instrument was perfected has prevented me from having had more than a limited trial of it. So far, however, as it has been used, the results are most satisfactory. The few cases to be detailed will convey, better than any explanation I could give, an idea of its effects, and may serve, in some measure, to prove how far we may expect benefit in following up this plan of treatment. On referring to them, it will be seen that they relate principally to affections connected with the uterine system, to which this method seems particularly well suited, though future trials will tell whether many diseases, both in the male and female, may not obtain infinite service from it; but for the present it will be noticed only so far as it bears on this class of cases. Many of the diseases of females are not only exceedingly painful in their nature, but are rendered very difficult to treat, owing to a highly sensitive state of the nervous system. Pain may be most severe, but, to give relief, the evil effects of opium prevent its more frequent use: therefore other remedies less likely to cause those unpleasant consequences are prescribed. Instance, for example, cases of carcinoma of the uterus, in which, when pain becomes severe, opium must be resorted to. What is the state of the patient under its use? Ease is obtained, and perhaps rest in sleep, both most necessary and indispensable; but, on the other hand, extreme nervousness, headach, loss of appetite, constipation, and a host of ills, are ushered in or increased by it. Or, if it be a case of pain or irritation, as in dysmenorrhœal patients, here again opium is not resorted to if it can possibly be avoided, for many of the reasons already mentioned; but other remedies whose action, though milder, is less likely to disturb the nervous system, already too much excited, are mostly directed,—as camphor, extract of hyoscyamus, hops, &c.,—yet whose soothing effects are frequently very slow in producing the desired ease and comfort for the sufferer. In such cases, if the local application of the vapour of chloroform succeed in future trials, as it has already done, most immediate and very comfortable relief may be expected from its use.

The first effect produced by its application is a sensation of heat, which some complain of more than others, but which in a very few minutes is not referred to, as it is either more easily borne or soon subsides. If much uneasiness is expressed on account of it, the action of the instrument may be suspended for a little, or its effect diminished, which is all that is necessary. When applied per vaginam, on account of pain in the

loins and sometimes over the pubis, arising from uterine irritation, immediately after the sensation of heat is felt from the presence of the vapour, the pain subsides, first in the back, then in the pubic region.

I have met with but one case in which chloroform, applied in this manner, did not remove pain; but in this instance the uneasy sensations were confined to the uterus, or felt per vaginam, and at the time the os uteri was very irritable on account of excoriation, which might account for a greater degree of heat than usual being experienced from the vapour[a].

The relief afforded by the local application of the vapour of chloroform is not of a very transient nature. In every instance in which pain was removed by it there was no return for several hours, and then in a very mitigated degree. In the intervals, great comfort was usually felt. Patients who previously had taken opium, as in case No. I., preferred chloroform, as it caused no unpleasant sensation in the head next day.



The apparatus for applying it[b] consists of a small metallic chamber; to one end of this a gum-elastic bottle is attached, to the other, a pipe furnished with a valve. On the end of the chamber there is also a second valve to admit atmospheric air for the working of the instrument. In order to charge it with chloroform it is necessary to unscrew the stopper in the side of the chamber, within which a piece of sponge is placed for holding the fluid.

The quantity poured in should not be more than the sponge will absorb, otherwise, instead of vapour, fluid chloroform will be thrown against the affected part. When charged, the vapour may be conveyed to the part requiring its application by any convenient pipe, if closely fitted to the one on the instru-

[a] While these pages were passing through the press, I was informed by this patient that on the heat caused by the chloroform subsiding, which took place in much less than half an hour, she felt perfectly relieved of the uterine pain, and had no return of it.

[b] 1. Small pipe containing a valve *a* for transmitting the vapour; 2. Air-valve; 3. Chamber containing within it a sponge for holding the chloroform; 4. Screw stopper for closing sponge chamber; 5. India-rubber bottle attached.

ment, pressure being made on the elastic bag to produce expulsion of the vapour.

In proceeding to the consideration of some of the cases in which the vapour of chloroform was used by me locally, the first disease presented to the reader is so well known as an exceedingly painful and distressing affection, that it requires no comment. Valuable indeed would that remedy be which in such a complaint could hold out the hope of affording relief during the often long and torturing existence of many who are the victims of this sad malady. Allusion having been already made to the use of opium in the treatment of it, sufficient has been said to prove, that if, even for part of the duration of this complaint, it could be dispensed with by substituting the vapour of chloroform, this remedy is well deserving of a trial. In the present case it has been found most useful. Pain has been removed by it in fully as short a time as it could have been by inhalation, without the smallest uneasiness to the patient, who, as is stated in the case, was so perfectly relieved that she fell into a quiet sleep, and had an excellent night's rest, and this not on one occasion only.

Case I.—Mrs. L., aged 45, a very large, strong-looking woman, weighing about eighteen stone, the mother of seven children, her youngest five years old, had frequent attacks of uterine hemorrhage at irregular periods, which she supposed to be menorrhagic, as her regular menstruation, she said, had not ceased when those irregular hemorrhagic discharges began. Little notice was at first taken of them, but as they resisted the means adopted by her medical attendants, it was deemed necessary to have the uterus examined, for which purpose I was called to see her on the 19th of February, 1853.

I learned that, besides hemorrhage, she had in the intervals, a most offensive muco-purulent discharge; there was a sensation of burning experienced in the loins, the bladder was more or less irritable, and the bowels were generally confined, the alvine dejections being of an exceedingly dark colour, and looking as if streaked with blood: altogether she felt nervous to the greatest degree, and had become remarkably pale and weak from hemorrhage, which was not only frequent in its returns but very profuse.

On examination with the finger, the uterus felt extensively affected by carcinoma; ulceration had destroyed the cervix to a great extent; the edges of the ulcerated parts were most exquisitely tender to the touch, sharp and severe pain being complained of, from the gentlest pressure with the finger.

Under the use of astringent and soothing lotions, cupping

over the loins and sacrum, with tonics, &c., given internally, the hemorrhage ceased, and only returned at long intervals, and mostly owing to some accidental circumstance, such as a drive on a rough car, violent mental emotions, to which her exceedingly nervous temperament made her peculiarly liable, or awkwardness on the part of her nurse in using the syringe when injecting lotions. The sensation of heat in the loins was also relieved in the course of a few days, and only troubled her occasionally; constipation of the bowels invariably increased her sufferings, and if unrelieved by aperient medicine frequently caused a recurrence of the hemorrhage. At this time she did not suffer much, nor had she the characteristic pains of carcinoma until the month of May. In order to obviate the necessity for giving opiates, when pain became severe, various remedies were resorted to, such as tincture of Indian hemp, camphor and extract of hyoscyamus, chloroform in draughts, cupping over the loins and sacrum, tepid hip-bath, &c. A drachm of chloroform and a scruple of camphor, mixed with an ounce of white wax ointment, to which was added occasionally a drachm of extract of belladonna, when rubbed over the loins, either after or without the use of the hip-bath, gave very great relief, and was exceedingly grateful to her.

Gentle exercise, by driving in the open air, improved her appetite very much, and tended towards obtaining comfortable sleep for her at night. At length the pains became so severe that morphia draughts were frequently required. I now resorted to the local application of the vapour of chloroform, and with the most satisfactory results.

When the vapour douche of chloroform was used for about two minutes the finger could be moved freely over the edge of the ulcerated uterus without causing the least degree of pain, which never was the case before. The patient said she had a feeling of warmth or heat during the action of the vapour, which was soon succeeded by a numb sensation.

The first time that pain required the chloroform to be applied the suffering was perfectly removed in a few minutes, and the relief was so great that, on withdrawing the instrument, she fell into a most refreshing sleep, and had an excellent night's rest. It is now always resorted to when the pain must be quieted, and is very much preferred by the patient for that purpose to the morphia draughts, as she says her head is free from uneasy sensations the next day, which is not the case when she takes morphia.

For the following cases, Nos. II. and III., chloroform vapour

seems to be particularly well suited. Before making a trial I had expected good results from its application; but the rapidity of its action in giving relief in each, and the permanency of the ease afforded in Case No. III. exceeded my hopes very much. It is deserving of notice that in Case II. the duration of the menstrual period was much lengthened, from which circumstance it may be inferred that the application has not only the effect of saving the patient from her usual degree of suffering, but, by subduing the spasmodic action of the uterus, tends towards the production of a more natural secretion. As yet I have not had an opportunity of testing its efficacy thus in the patient of Case III.; it is her intention, however, to resort to its use when next about to menstruate, so that at a future time the results may be laid before the reader.

Case II.—Miss R., aged 25, was for some months under treatment for disease of the uterus before coming under my care.

When I first saw her on the 13th September, 1853, she informed me that the ulceration which had affected her womb was for some time healed (which statement was verified by examination), and that she now suffered from very intense pain in that organ, which seized her every morning on awakening, and continued more or less during the day, accompanied by painful sensations in the lower part of the back. Menstruation was regular in its return, but its approach was attended with very severe pain, the secretion was very scanty, and continued but for one day only. Her appetite was not good, and she was exceedingly nervous and weak.

Part of the treatment I adopted with this lady was the application of the vapour of chloroform to the uterus, which she was able to do herself. A very few days had passed when she told me the vapour always relieved her, and she felt improved under its use, and when applied at night going to bed she had the pain much less severe next morning.

On the 19th she had the sensations usually experienced on the approach of menstruation, which on former occasions were, as already noticed, exceedingly painful, but at this time she resorted to the chloroform vapour, which had the effect of rendering her perfectly comfortable, and the secretion, which usually lasted for but one day, now continued for three.

Case III.—Mrs. F., aged 25, a strong-looking woman, first came under my care on the 23rd of April, 1853. Shortly after marriage, which took place three years before this date, she aborted; since then she did not again become pregnant. Menstruation, both before marriage and to this time, was al-

ways very painful; the discharge scanty, and dysmenorrhœal membrane frequently expelled.

For the last two and a half years her health and strength very much declined, and she suffered from severe pain in the back and uterine region, attended with leucorrhœal discharge. On examination by the speculum excoriation of the os and cervix uteri was discovered, which soon got well under the treatment adopted.

On the 15th of September she again consulted me on account of a return of the severe lumbar and uterine pain which had troubled her for some time past, but on the day previous to her coming to me was so excruciating, and accompanied by so much pain in her breasts, that she thought it impossible she could have borne it. This day the pain in her breasts was better, but in other respects she suffered nearly as much as on yesterday, from pain in the pubic and uterine regions, and back. The uterus was tender to the touch when examined by the finger internally, but no abrasion of the os or cervix was discovered by the speculum. The vapour of chloroform, locally applied by the anæsthetic douche, had the most immediate and happy effects. In no case that I have met with did relief so instantly succeed to its use. Not more than a minute could have passed from commencing its application when the patient expressed herself relieved from, first, the lumbar pain, and next, that in the pubic and uterine regions. After I had withdrawn the instrument, for some time a sensation of warmth, of a very agreeable nature, combined with that of strength, was described as being felt in the back. Altogether, she said, for months she had not been so free from pain or so comfortable. Judging from the expression of countenance, the change so immediate from suffering to freedom from pain was most remarkable. There was no return of it until about eight o'clock in the evening, from the time of the application of chloroform during the day, which was between twelve and one o'clock; but it was then so trivial that she did not think anything of it. The next day two or three jets of the douche quite removed every trace of uneasiness. The patient said she was not only relieved of the pain in her back, but she was perfectly free from a bearing-down sensation which had troubled her very much for some time past.

The drain of suckling on a weak constitution tends to the production of many debilitating and nervous complaints, which are met with very frequently in the form of headach, giddiness, pain in various situations, &c. The following case affords an instance of this description. The subject of it was

very unfit to act in the capacity of wet-nurse, and was rendered still more unfit by the occurrence of uterine hemorrhage. Increased debility, as a natural consequence, followed the loss of blood; then came on violent lumbar and epigastric pains.

The remedies usually resorted to in such cases, and which are very beneficial, consist in tonics and anti-spasmodics, to which must be added a full and generous regimen, with exercise in the open air; but in the present instance it was very desirable to relieve suffering immediately, which was of a very severe nature, and in itself, independent of the previous drain, exceedingly debilitating to the patient's constitution. The vapour of chloroform served to effect this in a most satisfactory manner, and within the space of a much shorter time than could have been accomplished by any other remedy with which I am acquainted, while it in no way prevented the adoption afterwards of those means which were fitted to restore strength and vigour.

Case IV.—Mrs. K., aged 32, a delicate-looking person, the mother of six children, at present nursing her youngest, a child of seven months' old, was seized in August last with violent uterine hemorrhage, since which occurrence her back troubled her very much, and for three days previous to my seeing her was accompanied by severe pain, referred to the epigastric region. Owing to the violence of her sufferings, she came to consult me about three weeks after the attack of uterine hemorrhage. She seemed in great pain, and was bent forward from that in the epigastrium, which she described as running across from right to left. Immediate relief was anxiously sought for: I therefore proceeded to apply the vapour of chloroform to the uterus, *per vaginam*, by the anæsthetic douche, in hopes of giving her ease sooner in this way than by any other means. I had scarcely sent half a dozen jets against the os uteri when the pain subsided, first in the back, and immediately after in the epigastrium. The sensation perceived by her she described as being a most agreeable and comfortable feeling of heat in the spine, and a total relief from every trace of pain, which ease she had been a stranger to for the last three weeks. On rising from the sofa to sit in the upright position she felt a little weak, but only for a few minutes. During the application of the vapour she had no unpleasant or unusual sensation in her head, and the pulse seemed unaffected.

When abortion frequently takes place in any female, but more particularly in one of a much injured constitution, hav-

ing in it the dregs of syphilis, diseases hard to manage, and attended with a good deal of distress, are occasionally presented to the medical man. The case next detailed is very much of this description. Various remedies were resorted to, but none of them served to secure perfect relief to the patient, whose situation in life rendered her peculiarly liable to relapse. She was the wife of a soldier, and consequently passed from the care of one medical practitioner to that of another, to which circumstance she referred much of her delicacy.

It will be seen in the notes of the case that chloroform was used in the form of ointment with more relief than was obtained from any of the other remedies, but at length failed in procuring ease; however, by resorting to the vapour, the benefit derived was very decided, and far more effectual than had been before experienced from any previous plan of treatment. The patient herself felt so entirely free from her usual sensation that her countenance now bore the expression of comfort and satisfaction.

Case V.—Mrs. R., aged 33, a very weak, sickly-looking woman, came under my care on the 4th of April, 1853, on account of uterine hemorrhage, which had followed a miscarriage she had three weeks previously. She had brought forth three children, all premature, and had several abortions. From her general appearance, and the history of her case, I found that a syphilitic taint was in the constitution; and the want of proper advice and care at all times, but particularly in her abortions, had added much towards increasing her delicacy. After the hemorrhagic discharge was altogether restrained, it was discovered that ulceration of the os uteri existed, which got quite well under treatment. During the time that it was present, and for some time after its being healed, she suffered very much from pain in the back and loins, with a most distressing sensation of scalding in the vagina, which required numerous remedies for its relief. One of the most effectual was the ointment mentioned in Case I. Rubbing a little of this across the loins and over the sacrum was very soothing and agreeable.

On the 12th September she had a return of pain in the back and vagina such as I have described, but without a recurrence of ulceration of the os uteri. She resorted to the use of the ointment to her loins in the usual way, but without obtaining relief.

On the 15th she was forced to come to me, having suffered so much during the previous night, and was evidently in very great distress. I now applied the chloroform vapour, by means of the anæsthetic douche, to the uterus and vagina. In about

four or five minutes she experienced relief, first in the back, and presently after in the vagina. I continued its use for several minutes in order to render the effect more permanent, which so fully succeeded, that she walked away feeling quite comfortable and free from pain. When I next saw her, a few days after the application, she said relief was still felt by her, and that she had more ease than for a very long time previously.

The nipples are not uncommonly the seat of a good deal of irritation, quite independent of the existence of abrasions or fissures, which could account for this circumstance. I met with a most troublesome case of the kind some time ago in a first confinement, where pain was so great on applying the child that the lady, a very excitable person, could not bear the least effort of suction, though the cuticle, by the application of lotions during the latter months of pregnancy, was in a most healthy condition, without the least appearance of abrasion or fissure on the nipples, which were well formed, and projected sufficiently from the breasts. By smearing some extract of belladonna over the breasts, at some distance from the nipples, about an hour before nursing, all irritability was removed during the process of suction. To prevent risk to the child the belladonna was carefully washed off before placing it at the breast. This treatment was pursued for but two or three days, when the annoyance was perfectly relieved.

The results obtained in the following case from the local employment of the vapour of chloroform to the breast would lead me to prefer its use in a similar instance of irritable nipples to that related. It is less troublesome in its application than the extract of belladonna, and infinitely safer for the child. It is worth remarking how long the effect produced by it continued, several hours having elapsed before pain again became troublesome.

Case VI.—A. Coffey, aged 30, the mother of five children, applied to me on the 16th of September, 1853, under the following circumstances. A week before coming, her child, an infant of thirteen months old, was sucking, and bit the nipple of her left breast, which hurt her very much. She persisted in nursing after the injury until the 16th of September, when the pain was so great that she was forced to desist. The entire breast was exquisitely tender to the touch, particularly on its under surface and towards the axilla, where it felt very hard and much enlarged; the skin moved freely over the tumified gland, and was free from any inflammatory blush. The nipple

was also very tender, and had a small scar on it, such as a child's tooth would make.

The patient informed me that for the last few days she had frequently a sensation of faintness, and altogether was very weak and languid.

In order to prevent the too rapid passing away of the vapour, I covered her breast with a capsule of paper, and under it directed the pipe of the douche towards the nipple, upon which I caused the chloroform to act during the first part of the operation. In about a minute or so, she could permit me to press it between my finger and thumb without the least sensation of pain. I then caused the vapour to pass on the tumified part, under the paper capsule, which became influenced in a similar manner as the nipple, and could bear to be raised and examined with very little uneasiness. The woman now passed her own hand over and under her breast, and expressed herself very much relieved, and much more comfortable than she had felt for some days. When I next saw her she told me her breast had felt very easy during the remainder of the day on which the chloroform was applied to it.

The next case is inserted though rather out of place, but as cholera seems again about to visit us it may not be altogether void of interest, as showing the beneficial results likely to be obtained from the use of chloroform in that disease. I have used this medicine very freely in many of the cases of vomiting and diarrhœa which have fallen under my notice during the present season, and from what I have observed of its efficacy, in staying the irritability of stomach and restoring warmth to the patient, I feel much prepossessed in its favour.

Case VII.—Mr. B., aged fifty-nine years, was attacked with cholera during the night of the 27th of August, 1853. He had no sleep, vomited everything taken into the stomach, passed large and frequent rice-coloured watery stools, and suffered severely from cramps in the abdomen, loins, and extremities, which caused him to cry out repeatedly.

I saw him at an early hour on the 28th. He was then very low and weak, countenance anxious, dark, and much sunken, pulse very small, but not much increased in frequency, surface of the body and extremities cold. The purging had ceased for a few hours, but he continued to reject everything from the stomach. I directed a mixture, which he immediately vomited, though given with the intention of quieting this distress. He had taken camphor dissolved in spirits, which

was of great comfort to him, but did not stop the vomiting. I now gave him a draught containing fifteen drops of chloroform in a little cold water, which he drank with great eagerness, and described it as the most reviving thing he had taken. Very soon after he fell into a quiet and refreshing sleep for two hours. On awaking, he felt much better; the stomach was quiet, and he expressed himself as being warm and more comfortable.

I directed a draught containing ten drops of chloroform in a little water to be given every two hours whilst the vomiting continued. However, the relief and comfort caused by the first was so great that he desired a second, and was given it, though he had no return of vomiting. The stomach remained perfectly quiet, and he was doing well until his friends unfortunately, at his own request, gave him a glass of ginger beer, which renewed the vomiting and purging. I now gave him acetate of lead and opium, ice, cold water, &c.; and to relieve the cramps I had the loins, abdomen, and extremities rubbed with chloroform, in the proportion of a drachm to an ounce of white wax ointment. This acted remarkably well, and not only produced the desired effect in quieting the cramps, but tended a good deal towards allaying the vomiting. In the course of a few days he was convalescent.

In observing the effects of chloroform as applied locally in the form of vapour in the above cases, I have endeavoured to obtain as correct a notion of it as possible, in order that a true estimate might be arrived at of its value as a remedy. Besides the cases here recorded, I have applied the vapour locally in various other forms of irritation. One of these in particular I was anxious to know its action in—namely, *pruritus pudendi*, a disease exceedingly troublesome and unpleasant to the patient, and for the relief of which she is often very reluctant to ask a remedy until forced to do so. I have used it in a case of this kind in the person of a very intelligent patient, who for a length of time had been annoyed, particularly on the approach of a menstrual period, by this distressing complaint, for which she had made use of various remedies. The vapour of chloroform, she informed me, afforded her relief from her uneasy sensations. On referring to one of the cases (Case v.) detailed, it will be seen that there was a very severe sense of scalding in the vagina, which seemed to depend a good deal on uterine irritation. Knowing the heat caused by the vapour of chloroform, I feared this patient should have suffered severely from its application; but, on the contrary,

she was quite relieved of it; so in *pruritus pudendi*, arising from a similar cause, the like results have been obtained as in her case.

If future investigation as to the effect of the vapour of chloroform when locally applied coincide with the results already observed in the series of cases herein detailed, it seems reasonable that the following conclusions be considered deducible:—

First. That in many forms of disease attended with pain or irritation the local application of the vapour of chloroform will frequently act as quickly in affording immunity from suffering as though inhaled in the usual manner.

Secondly. That the vapour locally applied is not attended with any unpleasant effects (save the sensation of more or less heat) either at the time or subsequently, and is therefore eligible under circumstances contra-indicating its use by inhalation.

Thirdly. That as a remedy, its local application is preferable to the use of opium and most narcotics in spasmodic and painful affections, particularly of the uterine system, owing, first, to its freedom from causing derangement of the digestive organs, and secondly, to its greater rapidity of action.

Art. XV.—*Observations on Remittent Fever in Ireland.* By Thomas Purefoy, M. D., Medical Officer of the Cloughjordan Dispensary and Fever Hospital, County Tipperary.

It is now nearly six years since I stated, as the result of my experience of the late epidemic fever of 1847, that the disease was distinctly remittent in its type (the word remittent was by a typographical error printed intermittent), and that its characteristic symptoms pointed out the existence of gastric and intestinal irritation to a severe degree, the diseased action having its seat in the gastro-intestinal mucous membrane[a]. An extensive experience, and careful observation of the disease from the above-mentioned period to the present time, serve but to confirm the opinion which I had then formed; hence it is that I am induced thus to direct the attention of the profession to what, in my mind at least, seems to be a new—or peculiar and specific—form of fever, consequent upon, and intimately connected with the disastrous famine and manifold sufferings of late years. My object being to give merely the result of personal experience, I shall

[a] Dublin Medical Press, November 17, 1847.

not of course refer to any of our numerous and most important authorities upon the subject of fever; and I trust that these observations may tend to excite a more general interest in, and investigation of, a subject of so much importance.

Etiology of the Disease.—On the first outbreak of the late epidemic, in the month of May, 1847, in Cloughjordan and its neighbourhood, the poor generally were extremely bad subjects for disease, having suffered for some time previously under the injurious effects of a wide-spread and most severe epidemic of measles, which proved fatal in many instances, and which was much aggravated, just then, by a distressing dearth of food, and the absence of the necessaries which are usually supplied by a comfortable home and good clothing. The spring season was unusually severe, and under the combined influence of bad weather, dearth of food, fuel, and clothing, the fever spread rapidly amongst the poor in the town and neighbourhood, at first mild and favourable in its progress; but in some short time the symptoms, progress, and character of the disease underwent a remarkable change for the worse, becoming very protracted in most cases, and of a decidedly remittent type.

Symptoms and Progress.—On its first appearance the fever was characterized by suddenness of invasion, indicated by chills or rigors; pain of head, occasionally extending to the back and limbs; in several instances nausea and retching, with white furred tongue and heat of skin, occurred; whilst the intellect was clear and undisturbed, and the pulse seldom over 90. After a few days, marked remission of all the symptoms followed, such in some cases as to induce the patient to leave his bed, when a fresh accession of all his former symptoms—but in a much more severe form—reminded him that fever had *remitted*, not *ceased*, and that he was now to undergo a severe return of the disease, or, as it was very generally called, "*a relapse.*" During the summer months the ordinary symptoms of synochus were of so acute a character, and attended with so much of inflammatory re-action,—characterized by severe headach, flushed face, suffusion of the eyes, loss of rest, distressing pain of the back and limbs, with a full and resisting pulse, and the frequent occurrence of epistaxis,—that venesection was employed amongst the young and previously healthy patients in the proportion of about 10 per cent., and with the best results: a plan of treatment, however, which a variety of concurrent circumstances—as the protracted course which the disease soon assumed, attended with marked debility and frequently exhausting diarrhœa—soon rendered

quite inadmissible. The rapidity with which the disease spread, and its affecting many of the nurses engaged in attending the sick, would seem to place the contagious nature of this fever beyond a doubt.

The admissions to hospital in June much exceeded those for May; and in July the number of admissions was double that for June. With the increase in the number of the patients there was quite a proportionate increase in the violence of the disease; at the same time that the remissions and exacerbations were more distinctly and clearly marked. The chill, rigor, and sweating stage, now occurred every fifth, seventh, eleventh, or fifteenth day, in the majority of the mild and favourable cases; whilst in very many instances the disease ran an indefinite and protracted course of several weeks' duration, the exacerbation and remissions occurring so irregularly that five, fifteen, or twenty-one days might elapse between each recurrence of the febrile paroxysm. The lengthening of the period of remission was generally found to be a favourable symptom. As to crisis, it was very rarely observed, except in the few isolated cases of pure typhus, occurring chiefly amongst the upper class of patients, when, as usual, it appeared about the thirteenth or fifteenth day of fever. When the disease had been of three or four weeks' continuance, the exacerbations were always very severe, frequently either accompanied or immediately followed by violent retching or vomiting of a dark green fluid, headach, and pain of the back and limbs,—with profuse diarrhœa, the discharges being generally, in the first instance, of a bright yellow or orange colour, becoming, as the diarrhœa grew protracted, of a dirty drab or greenish shade, and mixed with mucus and small whitish flocculi. Profuse sweating, urgent thirst, and prostration of strength, which in a few instances proved fatal, invariably followed this stage of the disease; the diarrhœa was frequently premonitory of most severe and unmanageable dysentery. In the autumn of 1847 dysentery of a most aggravated and extremely fatal character spread extensively amongst the fever patients, whether treated in hospital or in their houses. So prevalent was this morbid condition of the abdominal viscera, that nausea and vomiting, with diarrhœa, occurred in 90 cases out of 100. Tympanitis or abdominal tenderness was rarely observed; gurgling upon pressure in the iliac fossa was often present. It is a very remarkable fact, that at this period not more than half a dozen cases of typhus, and, perhaps, ten or twelve cases characterized by cerebral symptoms, occurred amongst a registry of 260 patients, treated in hospital within a short

period of time. Maculæ were frequent at the commencement of the epidemic, but petechiæ infrequent.

Complications and Sequelæ.—The complications usually observed in the worst forms of the disease were, erysipelas, inflammation of the parotids; purpura; scorbutus; subacute gastritis; neuralgia, chiefly affecting the extremities; a morbid affection of the cerebellum and spinal marrow, supposed to be spinal arachnitis, and characterized by severe pain along the spinal column, with rigidity of the dorsal muscles, flexure of the head backwards,—the pain and suffering being intensely aggravated by every effort to move or change the position in bed; œdema of the ankles; general anasarca; and a most intractable and fatal form of dysentery, insomuch that amongst the unhappy subjects of it death was the rule, recovery the exception. After the lapse of a year dysentery disappeared altogether, and has been a rare disease in this neighbourhood since then. However, it is worthy of observation, that when dysentery had ceased its ravages, varied forms of skin disease became extremely frequent amongst the class of patients who had hitherto been its subjects; and yet more lately several young labourers have sought relief for that very rare and interesting disease, nyctalopia, which, without any known cause, affected them, coming on suddenly, and as abruptly and unaccountably taking its departure. In some instances the disease would remit or be absent for a week, again recur, and finally go off altogether. Many patients stated that they were liable to this affection in spring or autumn. These patients were scarcely ever sensibly relieved by medical treatment, but invariably the malady spontaneously disappeared after the lapse of some time.

Post-mortem Appearances.—All cases examined exhibited traces of gastro-intestinal irritation to a great extent,—in some instances producing ulceration in the colon and rectum. In fact, the history, symptoms, and progress of the disease, taken in connexion with the post-mortem appearances, proved that the abdominal viscera were the parts essentially engaged.

So much for the late epidemic, as to its outbreak, acme, and decline. This brief sketch I deemed to be essential, as introductory to my present subject, in order to show the origin, progress, and direct connexion of the *present form of remittent fever* with the epidemic of 1847. My experience and attentive observation of the disease during the past six years confirms me in the opinion, that a peculiar form of remittent fever followed upon the epidemic of 1847, and that the disease yet continues in the country, the same in essence, but modified by time and a variety of attendant circumstances.

To prove this position, it will be only necessary to detail as succinctly as possible the history of the great majority of fever cases as they are now presented to us.

The disease, as it now occurs, is most frequently observed in the spring and autumnal seasons, chiefly affecting the young or middle-aged, not remarkably prevalent amongst children. In almost every instance a period of general indisposition, or delicate state of health, precedes for some time the full establishment of the fever, indicated by total indisposition for business, depression of spirits, anorexia, creeping sensation of cold between the shoulders and along the spine, irregular action of the bowels, which are for the most part sluggish, whilst the urine is scanty and occasionally lets fall a reddish-coloured precipitate more or less abundant. The slightest form of the disease is marked merely by the occurrence of the chilly, hot, and sweating stages, recurring a few times, with irregular intervals of two or three days between the paroxysms, and seldom any local complication except headach, with nausea and disordered bowels; the patient, during the progress of this mild form of fever, being part of the time confined to bed, and occasionally up and dressed, resting himself upon a lounger or in an easy chair, if, perchance, in circumstances to enjoy these luxuries. In some instances, amongst the labouring classes, the patient will not submit to confinement to bed until the disease becomes protracted and severe. In one instance, which occurred in a medical student, I have known the first symptoms of this form of fever to disappear altogether upon his having changed the air and scene, by making a journey to a friend, about sixty miles from his own home.

The marked features, then, in this novel form of fever, may thus be summed up:—A previous state of slight, general indisposition, of days or weeks' continuance, followed by chilliness or rigors, and the usual symptoms of mild fever; deceptive symptoms of crisis occurring at an uncertain period of the disease, succeeded by apparent convalescence,—this amendment being of short duration,—when the disease re-appears in a more aggravated form; *these crises* and *relapses* (improperly so called) being *the true and peculiar characteristics* of the disease now described, which may be justly styled remittent in its nature, symptoms, and progress.

This disease has been differently denominated by different observers: called by some the famine fever; by others, relapsing fever; but to me it would appear that the most appropriate name is remittent fever; the remissions being as clearly marked as they are uncertain and irregular in their occurrence. The remission in the symptoms is a characteristic, and

at the same time a constant source of danger to the patient, since he is led to believe that a mere remission in the urgency of his symptoms, and a deceptive feeling of returning health, constitute a true crisis: accordingly, he gets up; but is soon convinced of his error by the recurrence of a severe rigor, and re-establishment of the fever in a very aggravated form. In most cases, much experience and an accurate judgment are necessary to detect the existence of fever during these remissions of the more active and manifest symptoms of the disease. However, the persistence of fever, in a decidedly mitigated but masked form, will be ascertained by a diligent and careful attention to and observation of the general symptoms. The expression of countenance will not be that of returning health; the appetite will be variable, fickle, and, at best, below the average of health; the secretions from the skin and kidneys defective or abnormal; perspirations will occur irregularly, whilst the bowels are sluggish and the discharges unhealthy: but the tongue and pulse afford the most invariable and correct indications of this peculiar febrile state of the system,—the former being, in almost every such case, whitish, furred, coated at the base, but at the same time moist, or covered with a viscid saliva, which is observed to become frothy at the angles of the mouth and along the surface of the tongue in whitish streaks from the root to the tip, whilst the patient is engaged in conversation or answering questions. It may be stated truly, that this organ never presents a perfectly healthy appearance during this truce with the more urgent symptoms, or stage of deceptive convalescence. As to the pulse, although decidedly reduced in frequency during these remissions, there will yet be found a sensible departure from its condition in a healthy state of the system, being either quicker in its contraction, irritable, and harder to the touch, or more full, resisting, and incompressible, than in health. It is truly a condition of pulse more easily recognised by the *tactus eruditus* than described by the pen to others. This favourable and delusive remission in the patient's symptoms will be interrupted by the exacerbation, or recurrence of the fever, in its most severe form,—generally upon some irregular day, as the third, fifth, or seventh, from the period of remission; returning whether the patient be carefully attended to in bed, or, perhaps, incautiously walking about his house, or even out airing.

I have frequently remarked that patients, even when they had been convalescent for weeks, were still liable to suffer under slight and evanescent attacks of feverishness; sometimes, perhaps, arising unaccountably, but more frequently following

upon some indiscretion in the way of taking improper food or excessive exercise. In one instance, a neighbouring patient, who had been convalescent for some time, walked into my house whilst suffering under severe rigors, that he might have directions as to what he was to do.

It is truly remarkable how long—even after good health is apparently established—this tendency to periodic febrile action, upon the slightest provocation, lingers in the system.

Very different symptoms may serve to indicate the approach of the so-called "relapse," but, more correctly speaking, the exacerbation, or return of a paroxysm of this remittent fever. Unusual drowsiness; indisposition for society; loss of accustomed appetite; thirst, and confined bowels; a dry or clammy and uncomfortable condition of the tongue and mouth, with scanty, high-coloured urine, often become the precursors of this febrile re-action. Much the most frequent indications are,—restlessness, succeeded by a sense of creeping or very slight chilliness between the shoulders and along the back, which, progressing, passes into severe rigors, lasting for one or more hours, often followed by headach, at first mild, but gradually becoming severe and distressing, with or without tinnitus aurium, and decided aversion to light and noise; flushing of the face; increased frequency of pulse; distressing sense of cold; marked depression of spirits; whilst the skin is hot and dry, and the extremities cold. The cold and hot stages invariably end in the sweating stage, which is generally profuse, and, in one instance, a very full and fat subject was in the habit of saturating several night-shirts with perspiration upon every recurrence of the febrile paroxysm. When the different stages are imperfectly developed, and sweating scanty, the disease will be generally protracted to several weeks' continuance. Upon the subsidence of the antecedent hot and cold stages, the patient is left in a state of much exhaustion, whilst the skin becomes cool and soft; the pulse is much reduced in frequency; the tongue deeply coated by a creamy-looking secretion, and the urine probably loaded with an abundant orange or reddish-coloured deposit. This deposit is, almost invariably, very abundant at this period, notwithstanding the urine frequently becomes healthy in appearance during the apyrexial intermissions; so that this secretion becomes at once diminished in quantity and abnormal in quality, even for some days after the subsidence of each febrile paroxysm.

The progress of the disease is generally slow, varying from four to six or eight weeks, or even a much longer period in some of the most protracted cases. The duration of the illness

is seldom below four weeks, under the most favourable circumstances. In a great many cases, six weeks elapse before convalescence is established; and I have frequently had patients, both in hospital and in their own houses, confined to bed for a much longer time, during which period the several symptoms and stages of irregular remittent fever were most distinctly marked; often seriously aggravated by making rash attempts to shake off the disease by getting out of bed and trying to resume ordinary habits; or, in other instances, as the result of some error in diet or general treatment. I use the word "*irregular*" here, simply because the exacerbations were scarcely ever found—though under careful observation—to recur with any degree of precision or regularity with regard to time; returning, perhaps, on the third, fifth, or seventh days in the milder cases, these intervals being greatly prolonged in the most severe forms of the disease.

Invariably, as convalescence approaches, so the *remissions* in the disease become *prolonged,* and the *paroxysms shortened,* and much milder in their symptoms. I have found the disease to run the course now described, in hospital, in the cabins of the poor, and in the comfortable dwellings of the gentry, but little amenable to treatment as regards *its duration*, yet often grievously aggravated, or, in a few rare instances, brought to a fatal termination, through mismanagement or neglect.

Death seldom occurs, and when it does, would appear to be the result of some local organic affection complicating the disease, as having arisen during its course.

Complications and Sequelæ.—The most frequent complications are affections of the stomach, liver, bowels, and brain, manifesting themselves very much in the order here given. The head affection is peculiar, occurring, as it often does, at an advanced period of the fever, and characteristic when present: there are dull and deep-seated pain of the head, not strictly localized; vertigo; tinnitus aurium; aversion to light and noise; drowsiness, *without* any tendency to congestion of the conjunctivæ; delirium, or violent excitement, and an anxious desire to be left wholly undisturbed. Nausea or vomiting; obstinate constipation, with whitish or dark-coloured scybalæ, alternating with diarrhœa; and slow, oppressed pulse, frequently accompany this affection,—most justly exciting a fear lest some serious disease of the brain may arise, and requiring the utmost care and watchfulness on the part of the medical attendant to be enabled to state decidedly whether the head affection is primary and idiopathic, or merely secon-

dary and symptomatic of a disordered state of the abdominal viscera.

These obscure and alarming cerebral symptoms continue frequently for several weeks, and, in more than one instance, have I known them to continue for many months after the patient had been restored to a state of tolerably good health, and fitted to attend to the daily routine of worldly affairs.

The secondary gastro-intestinal complications are marked by their appropriate symptoms. A few cases—in the early history of the disease—have been observed to terminate suddenly and unexpectedly, with decided symptoms of subacute gastritis. Of these complications now mentioned, the derangements of the head and stomach occasionally become protracted long after convalescence has been well established, and then may properly be classed as sequelæ; in this way, these affections seem sufficient to prevent the restoration of thorough sound and good health. A young gentleman, of bilious temperament, attacked by this peculiar remittent fever, suffered throughout the whole of his illness under gastric and cerebral symptoms, unusually protracted and severe; the gastric symptoms finally terminating in that remarkable derangement of the stomach aptly named by Sir H. Marsh "the regurgitating disease." So slowly had convalescence proceeded in this case, that, at the end of ten months, the patient yet suffered under an uncomfortable feeling in the head occasionally, whilst the stomach would sometimes reject a small quantity of undigested food without effort, or any distinct assignable cause for this perverted action. Notwithstanding the clear indications of gastric derangement which so often exist, the pointed, red-tipped, dry, brown tongue, and the urgent thirst of ordinary gastric fever, have been very seldom observed.

Diarrhœa, dysentery, and anasarca, sequelæ so prevalent when the epidemic of 1847 reached its acme, are now indeed very rare in their occurrence.

The Morbid Anatomy having been already briefly given, I shall here merely add, that the symptoms which now, in this advanced period of the history of the disease, present themselves, as clearly point to the lesions which examination after death has already detected, as they did at the outbreak of the epidemic in 1847; being distinctly referrible to gastro-intestinal irritation of more or less severity, and functional disorder of the liver.

The *Pathology* of this peculiar form of fever becomes much simplified through the aid of morbid anatomy; for whilst the

symptoms during life directly indicate a morbid condition of the digestive viscera, complicated by secondary or sympathetic affections of distant organs, the *post-mortem* appearances confirm the evidence which the existing symptoms afford. The sequence of this fever upon famine is not to be questioned; yet the direct connexion between them is by no means so obvious, although the conclusion seems inevitable, that, to a certain extent, they must be considered in the light of cause and effect. During the famine period in this country it is notorious that the want of food, its bad quality in many cases, the irregular or even excessive supply at some meals, as when Indian corn stirabout was supplied gratuitously at eating-houses; the long fasting and occasional gorging which I witnessed myself; together with the want of clothes and fuel; and all the complicated miseries of the poor, during even a temporary famine, formed a combination of circumstances well calculated to induce a morbid condition of the digestive organs primarily, which could not fail to mark very decidedly the symptoms, progress, and character of the fever, which so soon followed in the footsteps of famine,—a fever which, if not the direct result of famine, was yet unmistakably and very closely connected with it. It is not to be questioned that national calamities, such as famine and war, produce wide-spread influence, physical, mental, and moral; and, perhaps, it would not be speculating too far to suppose that fever, occurring under such circumstances, may be much modified in its character by the peculiar nature of the predisposing causes;—if operating upon the public mind merely in the way of fear or despondency, the prevailing epidemic being probably typhus; if the result of famine, and a combination of circumstances serving directly to act injuriously upon the digestive organs, then some complicated form of gastric fever, such as just now recorded. How many instances occur in daily practice to prove that a depressing influence, acting unexpectedly upon the mind of a patient ill of simple continued fever, may at once alter the disease to typhus! A previously healthy young man, whilst favourably passing through an attack of simple fever, was unguardedly apprised of some unfavourable occurrence in his worldly affairs, when he at once succumbed to the shock, and became the subject of overwhelming typhus fever, under which he quickly sank. Again, during the prevalence of the late epidemic, and whilst the Cloughjordan Fever Hospital was unsually crowded, a tradesman, of nervous temperament, who much dreaded fever, being engaged in repairing the roof of the hospital, and in the full enjoyment of pure air and sunshine,

sickened, went home, took to his bed, and very narrowly escaped with his life from an attack of pure maculated typhus, the crisis occurring on the thirteenth day, from which period he convalesced uninterruptedly, and soon regained perfect health. Thus, his illness differed altogether from that of the patients from whom it might be naturally inferred the infectious effluvia had arisen. Was the type of the disease influenced by predisposing causes, a nervous and susceptible temperament co-operating with an alarmed and fearful state of mind? The results would seem to justify this conclusion. In following out this mode of reasoning we shall be led to perceive the connexion apparently existing between the late visitation of famine, and the peculiar form of fever which so quickly followed. It is to be remembered that I speak of the disease only in reference to my own experience and observation; possibly the symptoms and progress described may have been peculiar to my locality.

It is a point of no small interest in the pathology of this disease that it directly induced, in its advanced stage, a form of dysentery—in my experience as fatal as Asiatic cholera; and when, after the lapse of several months, this fearful complication had altogether disappeared, that eruptive diseases of the skin should have become vastly increased in frequency. Are we justified in supposing that there was in some measure a transference of diseased action from one surface to another—from the mucous membrane to the skin? It is a fact also worthy of attention that nyctalopia has in this neighbourhood much increased in frequency during the last two years, owing, as the sufferers believe, to the indigestible diet of dry, hard, unleavened bread, which has supplied the place of the potato amongst the labouring class. I cannot deem these observations wholly irrelevant, since they go to prove the wide-spread influence of gastro-intestinal irritation, or morbid action of the abdominal viscera, in producing fever, modifying its symptoms and character, and also in laying the foundation for varied complications, in the way of disease of distant parts or organs.

The *treatment*, as in most forms of fever, must be modified according to circumstances,—as age, sex, previous state of health, stage of the disease, &c.; whilst it is most important to bear in mind certain peculiarities of the disease. First, its tedious course in the great majority of instances, however judiciously treated; and secondly, the constitutional inaptness which it so generally induces to bear a strictly debilitating plan of treatment. During a period of twelve or fifteen years venesection proved, in my experience, one of the most valuable

remedies available in the treatment of synochus or the ordinary continued fever, accompanied by high febrile re-action, to which our peasantry were so liable. Since the occurrence of famine, and the full development of the subsequent epidemic, venesection has been wholly inadmissible amongst the poor, and very rarely indicated even amongst the upper classes. The propriety of strict confinement to bed; due attention to the state of the skin, tongue, pulse, bowels, the secretory organs, and the morbid alterations in the several excretions, are practical points so obvious as not to call for comment.

But it is of much moment to make a judicious selection of remedies, avoiding at once all irritating or exhausting purgatives and the unduly prolonged use of diaphoretics, since both the intestinal mucous membrane and the skin are so markedly predisposed to morbid action. It is of vital importance to attend strictly to the existing condition of the several organs within the abdomen, and to endeavour by all means to re-establish the healthy discharge of their several functions. Diet is of no small importance in the management of each case, since nutriment in some form or other will be required from an early period; but it must be of such kind as to be at once light, digestible, and unstimulating, and given in small quantities at proper intervals. Occasionally local symptoms will arise, requiring more active interference, indicative of a congestive, subacute, or acute inflammatory affection of some one of the organs within the great cavities; of course, under such circumstances, leeching, cupping, and a strictly antiphlogistic plan of treatment will temporarily, be required, but should be only persevered in so long as existing symptoms may indicate the necessity for this mode of treatment.

I have repeatedly found both headach, and decided epigastric tenderness to be relieved, during an attack of fever of several weeks' continuance, by the repetition of a few leeches, and the subsequent application of a small blister; but this depleting plan has a fixed limit, beyond which it must not be pressed.

The progress of fever is often so protracted that the disease may well and advantageously be divided into the acute and chronic stages; a few remarks upon the latter shall close these remarks.

The lapse of time, a mitigation in the acuteness of the symptoms, and a modification in the progress of the disease, serve, with a degree of clearness, to point out the chronic stage. The pulse falls, perhaps, to the natural standard; the tongue is clean at the point and edges, but foul towards the back; the urine is

occasionally scanty and turbid; whilst chills and perspirations take place, with long intervening intervals. Under such circumstances, many are pronounced convalescent, until an aggravated renewal of the old symptoms sends them quickly back to bed again. The management of this period of the disease requires unceasing careful attention, in order to be duly aware of the subdued, but yet existing, febrile action under which the system labours, and also to meet with an appropriate treatment the truly deceptive complications which will now and again arise; none of which are more frequent or difficult of removal than those of the stomach and head. From all I have observed, it appears to me that the head affection is almost invariably secondary, and symptomatic of gastric disease. Leeching, blistering, and mercury, to ptyalism, in a mild degree, have been tried most guardedly and cautiously by myself, and others of more experience; and yet I am without any satisfactory proofs of the decided efficacy or entire appropriateness of this plan of treatment. However, the symptoms of congestion or subacute inflammation of the brain, which arise frequently towards the close of this disease, are often of so threatening and alarming a character that few would feel justified in merely temporizing, to the neglect of the efficient and active remedies within our reach. Our use of active remedies, under the preceding circumstances, should, of course, be very guarded, and their effects most carefully attended to.

The chronic-gastric symptoms—as pain, vomiting, or epigastric tenderness—seldom admit of leeching in the second stage. Repeated applications of very small blisters, or the local employment of croton oil, used frequently, are decidedly useful.

The whole class of vegetable bitters, with alkalies or prussic acid, the varied forms of chalybeate medicines, nutritive food, and the cautious use of wine, will severally be found beneficial when duly administered. The tepid salt-water bath also is a valuable adjunct in the chronic stages. Of cod-liver oil I have not had experience: but the all-important remedy, when it can be borne, is change of air and scene for several months continuously.

Having carefully observed the effects of quina in the advanced period of the disease, I always found that it appeared to check the paroxysms as to their return, and thus prolong the intermissions; however, when the paroxysms did return at the lapse of this prolonged interval, they were very severe. Yet I cannot doubt that the various preparations of bark, judiciously administered, are upon the whole favourable, in bringing the

disease to a more speedy termination, and inducing the stage of convalescence. Mild alterative doses of mercury form a valuable adjunct to the bark, to correct what has been well described by the late illustrious Graves as "*intermittent action of the liver.*" Certainly, the varied character of the stools, alternating as they do in the chronic stage, as to consistence and colour,—being *before* a febrile paroxysm, scanty, hard, and black, or of a deep reddish-brown colour, whilst during the intermissions they become abundant, and approach to the natural colour and consistence again,—would seem clearly to indicate *a suppression, followed by an increased flow of bile.*

Art. XVI.—*On the Type and Laws of Propagation which obtain in Tropical Fever, especially as developed in the Lowlands of Jamaica.* By T. Ross Jameson, M. D., Surgeon 91st Regiment.

The opinions generally maintained regarding the rise, type, and progress of fevers originating in the tropics, or in localities which, at certain seasons, resemble the tropics, may be described as fourfold. It is alleged:—1st. That such fevers, whether purely telluric, or occasionally modified by atmospheric influence, are entirely of local origin, of one type, and wholly devoid of any self-disseminating property. Or, 2ndly. That such fevers, although justly characterized as endemic, identical, and generally non-contagious,—may yet, under rare and peculiar circumstances, exhibit a self-multiplying power. Or, 3rdly. That tropical fevers are not identical, but exhibit at least three well-marked varieties:— first, the ardent fever of continued form, the result of high temperature acting, after a short residence, upon the natives either of northern latitudes or of elevated supra-marine localities: second, periodic fever, the result of paludal miasm: third, the true yellow fever, of continued form, propagated by contagion solely, attacking those who have not previously had the disease, whether African or European; and owning no local connexion whatever. Or 4thly. That such fevers are threefold, and as described in the last paragraph, except that the true yellow fever is regarded as local in its origin, and, in its mode of propagation, non-contagious.

The leading aim of the following observations is to deduce the correctness of the first of these four opinions from pyrexial phenomena, chiefly observed in the lowlands of Jamaica.

In temperate climates, when a susceptible individual is

exposed to the usual exciting causes of pyrexia, the pathological phenomena thence resulting remain for an uncertain period without any marked alteration, a slight evening exacerbation alone excepted. This form of disease is called a continued or synochoid fever. Under additional circumstances, such as want of sufficient nourishment, exposure to fatigue and the vicissitudes of the weather, long-continued mental anxiety or grief, living in low-lying localities, and crowded, ill-ventilated buildings, &c., the same individual, during a peculiar atmospheric condition, of which moist cold forms the most conspicuous feature, is liable to be attacked with the symptoms of continued fever, yet remarkably modified by a peculiar and well-developed adynamic tendency: in fact the disease has thus become a malignant continued or typhoid fever, and such fevers often prevail epidemically.

In tropical countries, however, or in localities where a certain high degree of temperature has existed for a considerable period, when an individual labours under pyrexia, although the leading symptoms displayed in continued fevers may be present, yet to these there is superadded another series of abnormal phenomena, which may be characterized generally as resulting from the principle of periodicity. Usually the fevers of these localities complete their periodic movement or paroxysm in twenty-four hours. They display a cold stage, a hot stage, and a sweating stage, followed by a remission or an intermission; moreover, each paroxysm may be described as having a moment of accession, an ascent, a culminating point, usually of limited duration, followed by a gradual abatement, either incomplete and terminating in a remission, or complete and terminating in an intermission or stage of perfect apyrexia. Of the absolute nature of the cause producing these periodic phenomena we know nothing. It is usually termed miasm,—frequently, but, as I apprehend, incorrectly, paludal miasm.

That a marsh is a most fruitful source of this poison, so essentially telluric[a] in its origin, is readily granted; but it is by no means its only source; it has indeed been ever found most difficult to state positively the conditions absolutely necessary for its generation and subsequent accumulation: a certain permanent degree of temperature, however, it need not be very high, the scarcity of water where it has recently abounded,—provided that such scarcity be short of actual dryness, at least in the subsoil,—and a windless state of the neighbouring at-

[a] "Miasm," throughout the following observations is used in this restricted sense.

mosphere, appear among the main requisites. Hence there are few localities so prolific of the more intense varieties of periodic fever in the West Indies, as a dry water-course, running along the leeward base of a precipitous mountain.

As the continued fevers of temperate climates sometimes give place to the malignant, continued, or typhus, so the simple periodic fevers of warm localities are exalted to the malignant periodic or yellow fever.

The question has hence arisen: Is miasm—a telluric poison, of course, in a concentrated form—the sole cause of this formidable disease? Or, is there another, an atmospheric cause, a true "malaria," probably depending on an abnormal electrical distribution, superadded, as necessary to develop its existence, at least in an epidemic form? We have not at present data to answer this question decisively; I am, however, inclined to lean to the latter hypothesis, and to believe also that this malaria, in combination with other causes, is obscurely connected with the origin and progress both of plague and malignant cholera[a]. Not to dwell upon subjects so uncertain, it is here sufficient to state,

[a] I would wish to explain here, even though, perhaps, obnoxious thereby to the charge of prolixity and vain repetition, why at one and the same time I would uphold the close affinity between all telluric tropical fevers, amounting in fact to the identity of such affections, and yet freely admit that an extra cause is most probably existent during the occurrence of those irregular outbreaks of malignant febrile disease so appalling in their widely spread severity.

First, then, in all tropical countries, or in countries where at certain seasons the peculiarities of tropical districts are occasionally present, miasm, a telluric poison, is elaborated in greater or less quantity.

Secondly, this miasm acts more or less prejudicially on all, but especially on the European constitution.

Thirdly, hence when an inhabitant of such localities is exposed to the usual exciting causes of pyrexia, the morbid phenomena that ensue exhibit, *inter alia*, the features of tropical disease, more especially the periodic alternation of morbid process, and the fatal cases terminate occasionally in sero-cerebral effusion; far more frequently, however (at least in the north-western tropics), in organic lesion or alteration of the gastro-enterital mucous tissue with the hemorrhagic discharges popularly termed "black vomit."

There are, however, exceptions to this statement. Cases are recorded in which death apparently occurred by cerebral affection, and yet no effusion was observed in *post mortem* examination; also others in which black vomit was present, but unaccompanied by either softening or any other lesion of the gastro-enteritical mucous tissue.

Fourthly, in these regions this form of febrile disease, inasmuch as it is produced by a universally spread telluric source, is necessarily endemic, and from different causes, such as increased virulence of miasm, &c, it is occasionlly epidemic.

Fifthly, at irregular periods, however, a peculiar and peculiarly malignant epidemic is occasionally developed, which probably results from the existence of a certain atmospheric condition, a real "malaria," possibly the effects of an abnormal electrical distribution.

Sixthly, the action of this febriferous atmosphere appears to be indirect, that is, its agency is manifested chiefly by a morbidly increased susceptibility of perceiving the effects of miasm on the part of persons living in the malarious locality; the atmos-

that the practical bearings of the question on either supposition remain unaltered. The additional cause, if another indeed there be, manifests its existence only in two ways: First, the symptoms of this fever, apparently identical with other remittents, are yet much more difficult of management; and, secondly, these symptoms, when viewed collectively, betray a singular depression of all the powers of organic life. Notwithstanding the above manifestations, however, providing death do not ensue during the initial paroxysm, or directly after, during the collapse from its effects, the periodic character of this malignant fever, and therefore its identity with the simpler fevers of type, is abundantly displayed.

It occasionally happens that in certain protracted cases, and also in others of severity at a very early stage, especially if occurring during the autumnal and winter seasons, the remissions become gradually less apparent, and then disappear entirely. The disease, thus masked, presents a series of equable phenomena, somewhat resembling the course of a synochoid fever. The absence of the evening exacerbation, however, which is invariably present in synochoid fevers, at once points out an essential difference between them and the cases in question. It will appear from the following considerations that such fevers are in fact decidedly periodic. They present themselves only in localities where periodic fevers are endemic. Their early history often shows inequality of the pyrexial features. They can sometimes be resolved into their legitimate type by remedial agents, such as quina and its salts. Contemporaneously with their appearance other cases occur, evidently owing to the same endemic or epidemic cause, and exhibiting well-marked periodic phenomena. Sometimes it is said the periodicity is masked in all the cases occurring among Euro-

pheric cause does not appear to act directly upon the virus itself, the virulence of which may remain unaltered.

Seventhly, the following queries naturally suggest themselves:—Is it possible in cool healthy seasons, and in certain districts of the drier description, where there is barely sufficient moisture present on ordinary occasions to extricate miasm, that this poison may for a limited period remain undeveloped, and yet the febriferous atmosphere itself may be present? Moreover, where this presence of malaria and miasm does occur, what will be the type of fever at such seasons? Again, in a perfectly clean and perfectly healthy ship at sea, where, of course, there is no miasm although within the tropical latitudes, if the febriferous atmosphere exist, what will be the form of pyrexia, if any, resulting?

Of my own personal knowledge I can furnish no reply to these queries. The conjunction alluded to on the first supposition must be so rare as to render any discussion on its effects of little practical utility. Neither do I think the second likely to be frequent. I should, however, be inclined to suspect that the form of disease so produced would not be altogether identical with that popularly styled yellow fever.

peans. Among the coloured classes, however, this is never the case, as far, at least, as I am aware.

The pathological conditions present in such masked fevers may, according to M. Maillot, be explained by remembering, that each paroxysm must be attended with a certain degree of local or general congestion,—that, at first, such congestions disappear entirely between the paroxysms if there be a period of apyrexia, partially if there be only a remission; but if the paroxysms occur with rapidity, the capillaries are unable to dispel all or even the greater portion of the blood accumulated on each febrile accession; therefore the tissue cannot resist the congestion so often renewed, and the irritation, as it has been happily expressed by Maillot, becomes "anatomically fixed."

It follows, as a corollary from the above, that the primary synochoid fevers of temperate climates differ *in toto* from the masked periodic tropical fevers which secondarily simulate their "continuity of morbid process." Their origin, progress, and pathology, are alike different. On the other hand, the absolute identity of these tropical continued fevers, as they are erroneously termed, with the usual periodic fevers of warm latitudes, appears to me unquestionable, and in a practical point of view is of great importance. These fevers, treated according to the old methods, whether antiphlogistic, stimulant, mercurial, or saline,—unlike the fevers of northern Europe they were thought to resemble,—proved quite intractable. Quina and its salts were exhibited, however, in Jamaica; first, I believe, in 1834, on the anti-periodic principle; afterwards, in 1839[a], on the specific principle. And thus the said fevers were either reconverted into the open periodic type, and then cured, or were directly cured with an almost magical rapidity.

There is a class of fevers not yet adverted to. I mean such as are developed on board a vessel previously healthy, under circumstances which appear to warrant the conclusion, that the "origo mali" exists in the vessel itself; or, if of external origin, is at least not telluric merely. To these curious outbreaks of disease may be ascribed much of the unfortunate difference of opinion that still exists, regarding the origin and nature of yellow fever, and also regarding the laws which regulate its propagation. Of these ship fevers (if I may be allowed the expression), there are five varieties. First, this fever may occur in temperate latitudes during cold, foggy, wet weather,

[a] I gave quina on the specific principle in cases of endemic fever in 1839; I had, however, no opportunity of testing the merits of this, *the true quina system*, in malignant fever till February, 1841.

in a ship, perhaps, short of provisions, overcrowded, and containing in itself certain conditions likely to cause pyrexia,—such as foul ballasting, peculiar condition of timbers, &c. &c. In fact, the combination of causes producing what Dickson and others have quaintly termed, a "ship marsh." This fever is synochoid, usually adynamic, and, therefore, in some points resembling typhus. Secondly, fever may occur, under similar circumstances, after entering the tropical seas, but before approaching tropical land. This may also assume a continued aspect. It is a disease, however, varying considerably in its symptoms, but frequently characterized, in its earlier stages at least, by high arterial action. Thirdly, fever may occur in a clean ship, in tropical seas, before it has reached any land. This is a good specimen of the real ardent continued fever. The fourth variety altogether differs from the three foregoing. When a man of war, a guard-ship for example, has been long at anchorage in an unhealthy tropical harbour, such as Port of Spain, Port au Prince, Port Royal, Jamaica, English Harbour, Antigua, &c., &c., it appears from experience that such a ship, although otherwise in itself free from any cause likely to produce disease, becomes, as it were, saturated with miasm, attracted from the adjoining shore. Hence a predisposed individual, going on board within the tropical latitudes, is obnoxious to an attack of periodic fever, even if he should never have approached, far less landed, on a tropical coast. There is yet a fifth description of ship fever. This is developed by the simultaneous existence in the same vessel of the essential conditions present in the first and fourth varieties, viz., the primary unclean state of the ship itself, with the presence therein of miasm, secondarily accumulated during a lengthened stay within the tropics. This conjunction gives rise, it is said, to a somewhat anomalous disease, partaking, some think, obscurely of the character both of typhus and periodic fevers,—at any rate most malignant and most fatal.

The general principle of periodicity, "the disposition to remit, which is constant in the fevers of Jamaica"[a], has already been adverted to; but, in order fully to understand the type of the fevers of Jamaica, it is now necessary to specify one of the most remarkable complications of this great principle,—that is, the tertian periodic movement. An ordinary paroxysm of a fever of type has its accession and intermission, or its accession and remission, within twenty-four hours. Therefore, in remittents and double tertians this phenomenon

[a] *Vide* Hunter, p. 83.

is usually of diurnal occurrence. Sometimes, however, there is an additional periodic feature in both these varieties. The febrile phenomena may be regarded during a double period of forty-eight hours; and then it will be observed that they are clearly more severe during the first period of twenty-four hours than during the second period; that they are therefore more prominent during alternate days; more prominent usually on the first, third, and fifth, than on the second, fourth, and sixth days: that, in point of fact, the first diurnal period may be regarded as an accession, and the second as a remission. Hence it follows that, in such cases, there are simultaneously present, as it were, two distinct cycles of febrile periodic movement. There is, moreover, a very important variety occasionally observed in this periodic phenomenon, which may be styled the semi-tertian. An ordinary tertian intermittent has one paroxysm within twenty-four hours, and on alternate days; a duplicate tertian has its two paroxysms within twenty-four hours, also on alternate days; a semi-tertian, however (the *ἡμιτριταῖον* of the Greeks[a]), has its three consecutive paroxysms, usually within thirty-six hours, the final twelve hours being therefore apyrexial. Hence some modern authors have styled this fever a triple tertian. The paroxysms generally, though not always, are arranged as follows:—About the afternoon of the first day there is a paroxysmal invasion, lasting from six to eight hours, with an intermission, varying from six to four hours in length. A second paroxysm and intermission of the same duration appears on the second day; then a third paroxysm, sometimes, though not always, milder than the two preceding, on the second night, followed by an apyrexial period of twelve or eighteen hours, which terminates on the afternoon of the third day. This completes the interval of forty-eight hours. The semi-tertian variety, as thus described, appears to me to afford the true key to many of the anomalous features presented by the more severe fevers of Jamaica. Imagine that the local cause producing a semi-tertian intermittent has become considerably aggravated,—what then ensues? The three paroxysms become sub-intrant; ere one is finished another has commenced; they become "extended or doubled," to use Sir John Pringle's expression: in point of fact there is but one paroxysm of thirty-six hours, followed by a remission of twelve

[a] I am aware it may be affirmed that the *ἡμιτριτᾶιον* should be regarded as rather identical with the double tertian than with the modern semi-tertian of the first class, or triple tertian, as it is now sometimes called; both types are, however, closely allied, and often run into each other. The prolongation of the first paroxysm at once transforms the latter into the former. It is therefore a matter of very little moment.

hours, instead of an apyrexial period. This is a semi-tertian remittent, and it is a most fatal disease. Finally, imagine the local cause has become still more intense: the thirty-six-hour paroxysm is then directly followed by collapse and death; sometimes even earlier, for the seizure may be cut short fatally at the twenty-fourth, eighteenth, or even at the twelfth hour! Dr. Fordyce, it would appear, was not far wrong when he styled yellow fever the "semi-tertian of warm countries."

The fevers that prevail in the lowlands of Jamaica, whether endemic, simple epidemic, or malignant epidemic, are invariably periodic. In the first instance this phenomenon can scarcely be overlooked. In the second and third, especially in the latter, it is occasionally either cut short previously to its full development, or masked in the manner already described; and in both these circumstances, especially in the former, there is displayed a remarkable adynamic tendency. In all cases proving fatal, black vomit is, on the whole, the most unvarying symptom; it is either thrown up before death, or discovered on post-mortem examination. Suppression of urine, severe cramps, hunger, and blueness of skin, with extreme cold, are occasionally noticed in the worst cases. In some instances, also, death occurs suddenly by a sort of apoplectic seizure. The actual type of fever appears to be influenced, during different years, by the unknown or obscure causes that alter the quantity and quality of the existing miasm. It is also modified during the same years, first, by varieties of race and by the varying of length of residence; secondly, by the precession of the seasons; thirdly, by supra-marine elevation; and fourthly, by the peculiar nature of the locality itself in which the fever exists.

I. The inhabitants of Jamaica, for our present purpose, may be classified as follows:—First, Creole negroes; secondly, African negroes; thirdly, coloured Creoles; fourthly, white Creoles, who have never left the island; fifthly, white Creoles and other whites who have resided in the lowlands several years; and sixthly, white new-comers of all kinds. Of these six classes, the first is, *cæteris paribus*, the most liable to the ordinary mild tertian, and the least liable to the malignant epidemic. Conversely, the last class is the most liable to this malignant fever, and the least liable to the mild varieties of intermittent. So also with the intervening classes.

II. The influence of the seasons is exemplified as follows:—During the early spring mild intermittents are seen; towards the end of spring and during summer complicated intermittents and remittents appear,—the latter assuming a more severe form in the autumn, and reaching the greatest intensity to-

wards mid-winter. But any sudden change in the weather, especially during the rainy season, is frequently followed by an equally sudden change in the type, severity, and frequency of febrile disease. Imagine Up Park, Jamaica, garrisoned as formerly by ten or twelve companies of Europeans,—probably above 700 rank and file,—one half of them wholly unseasoned, and accompanied by the usual large complement of women, children, and followers. It is the May season; the rains have been somewhat lighter than usual; the early spring has been comparatively a healthy one, and the admissions into hospital have been limited to a few mild intermittents among the older soldiers. Suddenly the wind ceases; the land-wind blows at night slightly but steadily from the west; the sea-breeze disappears entirely; the sun is singularly powerful, and the thermometer during a great part of the day stands above 85° or even 90° F.[a] in the shade. Within forty-eight hours camp followers present themselves with intermittents, invariably complicated in type. Among the soldiers, we have at once from ten to twenty admissions. All labour under pyrexia. One case, perhaps, is only an intermittent, but either a well-marked semi-tertian or prolonged double tertian. The great majority, however, are remittent, and some of them, too, assume the dreaded semi-tertian type. One case yet remains to be described; it is of most malignant form: in seventy-two hours it terminates fatally! Next day the admissions continue; they are twice as numerous and ultimately twice as fatal. Every one fears it is the commencement of a frightful epidemic. As suddenly as before, however, the weather changes; the "seasons," in West India phrase, recommence; the thermometer falls some twenty degrees; thunder and lightning, with severe squalls, supervene; heavy constant rain prevails, with a strong sea-breeze from the south-east, lasting steadily for three diurnal periods, and when the land-wind re-appears by night, it blows from the north or north-east. By the fourth day the fever has altogether disappeared, and from time to time a few sporadic cases of mild tertian present themselves as before.

III. Supra-marine elevation influences the type of fever in a most remarkable manner. In Jamaica are *ever* to be seen the same *territorial* morbid phenomena (if the expression may be used), so graphically described by Inspector-General Dr. Fergusson, as witnessed by him in St. Domingo. At the sea level malignant fever prevails; ascend—you encounter cere-

[a] During 1837 it frequently reached 97° in my residence at Kingston.

bral and gastric remittents or complicated intermittents; a little higher, you find the ordinary intermittents,—perhaps dysentery, with ulcers of miasmatous origin; and lastly, you reach the central table-land, where there is ever a perfect immunity from all tropical disease. The configuration of Jamaica enables these varying zones to be traversed in a single day's ride. Hence it would appear that, *cæteris paribus*, miasm varies in intensity directly with increase of temperature.

IV. At the sea level two descriptions of localities exist in which the usual forms of disease vary considerably. First—There is the ordinary marsh, where well-marked intermittents are more frequent than in any other lowland site during the earlier months of the year. Secondly, there is a species of dry, sandy soil, lying usually on rocks of coral formation. These exist either as islands, termed "Keys" in West Indian parlance, or in the form of a long, narrow peninsula. In such spots intermittents are very rare indeed, except among the negroes. The usual endemic is a remittent; and when epidemic and malignant, the periodicity is more frequently masked than in any other locality: yet if high land arises in the immediate neighbourhood of these sandy spots, there intermittents are observed in the usual proportion; therefore, it is reasonable to conclude that the miasm generated in such localities is identical in essence, although not in virulence, with the miasm which springs from the edge of the marsh. It would also appear probable that, *cæteris paribus*, and within certain limits, miasm varies in intensity inversely with increase of moisture. It may be added, that the presence or absence of rain influences the comparative salubrity of these two different localities. During an ordinarily dry year the rocky or sandy soil is usually healthy, whilst the marsh nearly dry evolves the most intense febrific miasm. But during a wet season the marsh, converted into a lake, becomes innocuous, whilst the "Key," temporarily supplied with a sufficient moisture, in its turn, generates febrile disease. Hence, also, we often observe that when the leeward becalmed bases of precipitous hills, however rocky or sandy they be, prove to Europeans almost uninhabitable,—periodic fevers either abate or disappear from the neighbouring paludal regions, in which they generally abound[a].

In thus describing the above four circumstances which tend

[a] These considerations tend to explain the apparent differences in the fevers of the drier islands, such as Barbadoes, and the more marshy localities, as Demerara, &c., yet even in the former station Fergusson reports the occurrence of well-marked remittents. So also M'Arthur.

so much to influence the type of the Jamaica fever, I would not be understood as announcing dogmatically fixed and invariable rules, but merely as indicating general principles, the correctness of which can there be traced by an ordinary observer with sufficient facility.

The endemic fever of Jamaica is, strictly speaking, an intermittent. By an intermittent I understand a periodic fever, in which there are distinct apyrexial periods, no matter how short or how long, such periods, as a general rule, being perceived during each diurnal revolution.

Among all classes except white new-comers this fever is usually a simple tertian; sometimes a duplicate tertian; less frequently a quotidian or a double tertian; still less frequently a quartan. Among white new-comers, however, semi-tertians of the first class (as formerly described) are not unfrequent, though perhaps a prolonged double tertian is the type assumed by this fever generally. The paroxysm is then of diurnal occurrence, lasting from twelve to twenty hours, or thereabouts: this accession (though by no means invariably) takes place early in the morning, and the apyrexial period appears after midnight. The cold stage is almost always very short, sometimes not exceeding many minutes: the paroxysm on alternate days, generally the first, third, and fifth, is, in a marked degree, more violent than on the second, fourth, and sixth days. This peculiarity indicates the type of the disease which otherwise might possibly be considered doubtful. In more severe forms, as the disease progresses, the apyrexial period frequently becomes shorter, and sometimes disappears entirely: the case is thereby converted into a tertian remittent. When the fever proves fatal, death may ensue on the fourteenth day, or later,—rarely before the seventh; and, as a general rule, is attended with the characteristic black vomiting. Relapses are not unfrequent, and are sometimes troublesome, especially if not treated with quina.

When fever prevails epidemically at Jamaica it is generally remittent; by which is meant a fever which exhibits usually, though by no means always, in twenty-four hours a distinct febrile abatement, of uncertain duration, but no apyrexial period.

Such a fever is either simple or malignant—the former occurring, on an average, about once in three years; the latter at longer but most uncertain intervals.

It sometimes happens that an epidemic owes its existence to causes only present in particular spots:—such as the unusual number of predisposed persons present; change in the di-

rection of the wind; obstruction to the usual outlets of some neighbouring stream, &c. &c. The disease is then circumscribed: it appears as the simple epidemic. It visits the locality in a manner sufficiently severe, whilst in the rest of the island no pyrexia is found save the ordinary endemic intermittent. With the malignant epidemic this limitation is rarely witnessed. Its ravages are almost universal up to a certain supra-marine elevation. The ordinary laws observed by periodic fevers are, in many respects, put aside. It springs up at the same time in several distant localities: sometimes almost all seem amenable to an attack; nay, it is said, in some rare cases the Creole negro himself is not exempt from seizure. Instances of the disease presenting no very prominent symptoms prove quite intractable, and the climax of the epidemic invasion is marked by the occurrence of those appalling cases in which "life is broken by a single shock;" yet, perhaps, so little is the apparent urgency, so little is even felt, that the victim himself does not apply for aid; or does so, if a soldier, with the half-dread of being possibly reprimanded for malingering.

The simple epidemic, then, is a remittent fever, consisting of an uninterrupted series of paroxysms. These paroxysms, although irregular both in their periods of accession and remission, usually last only twenty-four hours, and exhibit pretty distinctly the four following phases:—First, from the accession to the culminating point. During this period the febrile symptoms are constantly increasing. Second, the height of the paroxysm when the symptoms remain unaltered. Third, the progressive decline. Fourth, the remission, properly so called, when the febrile symptoms, although still present in a diminished degree, remain quite stationary. As a general rule, the severity of the fever may be tested by contrasting the lengths of the second and fourth stages;—it varies directly as the length of the former, inversely as the length of the latter.

But this epidemic fever is also tertian, and, therefore, if the period of forty-eight hours be regarded, it will appear that the first period of twenty-four hours is, *relatively*, a paroxysm; the second period of twenty-four hours, *relatively*, a remission.

Again, this fever is to be described as cerebral or gastric; the former prevailing in summer, the latter in autumn and winter. In both, if the disease be allowed to proceed unchecked, the diurnal remissions become less distinct, and, in some instances, disappear entirely. Even in these cases, however, although the four phases above described give way to morbid phenomena of a continued character during the quotidian period, still, in the great majority the tertian periodic law is vin-

dicated by the varying severity of the disease on alternate days. There are, it is said, exceptions to this rule; cases where all periodicity is masked; but such are, indeed, wonderfully rare.

As the season advances, the epidemic becomes more or less adynamic in its general character, and the mortality increases in the same proportion. The deaths are attended with the characteristic black vomit[a], either thrown up during life, or found in the stomach afterwards. Relapses are less frequent than in the endemic. The fatal issue is usually about the seventh day, sometimes on the night of the fifth, and rarely earlier; sometimes on the ninth, rarely later.

The principal anomaly in this fever is the occasional length of the remission, which, breaking through the rule that limits its duration to a period of less than ten hours, sometimes less than two, has, upon some occasions, been known to extend as far as thirty-six hours. In these cases the forty-eight hour period no longer consists of two distinct paroxysms of different intensity, but of one paroxysm only. Generally the latter period of the remission approaches nearly to a state of apyrexia. It not unfrequently happens also, if such cases be treated without quina, that the second febrile accession is longer and much more severe than the first.

The converse form of this anomalous fever is also not unfrequently witnessed. The paroxysm then extends to thirty-six hours, and the remission to the remaining twelve. This may be regarded, as I have already stated, as a semi-tertian remittent. It is *always* a formidable disease; and if the initial paroxysm proceed unchecked by quina, it usually causes organic lesions sufficiently extensive ultimately to destroy life.

During an invasion of the malignant epidemic fever, the type of the disease is still periodic, although the full development thereof is sometimes prevented by death ensuing, as we have already remarked, in the first paroxysm, or very shortly afterwards. This fatal termination occurs during the initial paroxysm, by a species of apoplectic seizure, or, after the completion of the paroxysm, by exhaustion. In both these instances the depression of the powers of organic life is most remarkable, although in the former there is, just at the accession, a slight *apparent* inflammatory stage.

Among the many anomalous forms of malignant fever the following appear to be, perhaps, the most notable:—First, the prolongation of the initial paroxysm. It is said that, in some

[a] The exceptions to this rule which, in Jamaica at least, are rare, occur mostly in the cerebral fever.

instances, its duration actually reaches to seventy-two[a] hours, then a speedy collapse and death. These cases are *very* rare, and are found only when the great local cause of the disease exists, during a very hot season, in a very dry locality, and where young, unseasoned, plethoric Europeans, of sanguine temperament, happen to be present in considerable numbers. Secondly, a more common occurrence is, that the first paroxysm, of whatever length, be succeeded by a long remission (say twelve hours), followed by a second paroxysm, distinct though *apparently* of a mild form, then collapse and death. Or, thirdly, that the initial paroxysm be succeeded by a short remission, probably under four hours, then a second paroxysm, sometimes apparently of increased severity, followed, after a long remission, by a third, but *no more*. Fourthly, the worst description of all being those cases which have been already alluded to, as negatively characterized by the absence of all symptoms, except, perhaps[b], a rather bluish cast of countenance, with slightly anxious expression; a feeling of lassitude and occasional tightness across the chest; a singularly compressible pulse, which is slower than natural, and also intermittent; black vomit and death, all in twenty-four, eighteen, or even in twelve hours.

Simultaneously with the presence of these perhaps anomalous fevers, instances of a somewhat milder form are present, in which the regular periodic form of this deadly disease is most amply vindicated. Relapses are comparatively rare, and death seldom ensues later than the fifth day, usually on the third, sometimes on the first. Except in the cases of apparent apoplectic seizure, black vomit is invariably found.

In the preceding remarks the Jamaica fevers have been arranged as endemic, simple epidemic, and malignant epidemic; but as some of the causes previously detailed, which modify these various forms, are almost invariably present, it follows that the different varieties of this disease are greatly intermingled; thus, whilst fever of a severe form is destroying the garrison at the rate of fifty per cent. in six months, the simpler form may be epidemic among the white Creoles; whilst among the black inhabitants we find only the ordinary intermittents. The observations made by Inspector-General Dr. Fergusson and by Dr. M'Millan, in the course of their military career, and also by Dr. Musgrave of Antigua, in his civil practice, I can, of my

[a] Hunter reports one such case.

[b] When, in addition to these features, an "icy coldness" is observed over the body the term "algid" has been happily employed as descriptive of this form of the disease by Gillkrest, Maillot, and others.

own knowledge, verify. I have seen at one and the same time in the same hospital, and ostensibly produced by the same cause, fevers of every grade, from the mildest tertian up to the malignant disease just described. I may add, too, it would have been impossible, in viewing the various intermediate grades, to state positively where one form of fever ended, and where the other began.

I have thus described, to the best of my ability, the characteristic types of the various forms of the lowland fever of Jamaica, as witnessed during a residence exceeding eleven years. It follows, if my description be correct, that one principle, and one only, can explain all their apparent anomalies; and that is their unvarying periodicity. Moreover, if I be further correct in deducing periodicity, as the result mainly of the morbid agency of the poison we call miasm, it also follows, that all these lowland fevers are miasmatic, and therefore have one origin, of one kind, differing only in degree.

It may fairly be deduced, as a corollary from the above theorem, that no fevers, identical with the synochoid varieties of temperate latitudes, exist in the lowlands of this island; and, therefore, if any fever be therein at any time present, deserving the appellation of "yellow fever," "bulam fever," "vomito negro," or any other similar designation, such fevers must be periodic, and therefore one in type with the usual island endemic.

I shall next proceed to speak of the type of malignant fever elsewhere, especially in the West Indies generally, in Western Africa, North America, and Spain, but this part of the subject must be discussed very briefly.

As far as my reading extends, it appears that the majority of authors, who have themselves witnessed epidemic invasions of malignant fevers in warm countries, give a description of their type very similar to that detailed in the preceding pages.

In support of this periodicity being observed as a leading feature in this disease in the West Indies generally, military and naval authorities are so numerous that it is unnecessary to particularize any. In civil life I may mention Dr. Musgrave of Antigua[a], and Dr. Dyett of Monserrat. The latter gentleman, in describing the epidemic of 1821, details an interesting case of intermittent fever, which terminated fatally on the fifth day with black vomiting.

In Western Africa Bryson and others support a similar

[a] In 1816, at Antigua, many cases commenced as intermittents, and some terminated fatally with all the symptoms of yellow fever. Severe intermittents were then observed among the blacks.

view: the former says, in the black vomit epidemic at Fernando Po, 1829, "very distinct remissions" were present, and, in some cases, "daily apyrexia."

In America the celebrated name of Rush at once presents itself. This author describes, in a most graphic manner, the periodic character of the malignant epidemic of 1793; and he also notices the termination of tertians by the fatal black vomiting. Ramsay, Davidge, Lining, &c., follow in the same strain.

In Spain Arejula describes the periodic character of the fever as there witnessed; and his statements are confirmed by Gonzales, Velasquez, Balmis, Flores Moreño, Alphonso dé Marie, &c.

In Gibraltar Dr. Gillkrest seems to characterize, in like manner, the fever of that station; and he, as well as Dr. Bancroft, quotes a host of competent observers[a] who also witnessed febrile remissions during the various epidemic invasions in that locality.

In Minorca, Cleghorn describes intermittents with coffee-grounds vomiting, &c.

Lastly, it is worthy of remark, that, wherever yellow fever has been epidemic, there the existence of well-marked remittents, during ordinary years, stands attested by numerous respectable authorities.

Now, where all parties are equally trustworthy, in a disputed point like the present, they who make a positive assertion, as to the existence of a fact, must be held to have so far proved their position. Hence, I am justified in concluding that, in the countries thus referred to, as in Jamaica, the malignant epidemic fevers were periodic, and therefore of miasmatic origin.

True it is, that authorities, fewer in number, still equally trustworthy, have made the negative assertion, that they did not see remissions, far less intermissions. Now it happens that remissions are occasionally very short and easy to be overlooked. I have known them to be far less than one hour in length, and to present themselves just before daybreak. Hence in such cases, unless the patient has been watched during the whole twenty-four hours, in point of argument, after the previous positive testimony, I am justified in at least suggesting that remissions may occasionally have passed unnoticed. Granting, however, that these observers can declare their patients to

[a] Especially Mr. Amiel, who states of epidemic fever, that "a milder form has long been known here under the denomination of bilious remittent, as is averred by all the medical men acquainted with the place."

have been attended professionally by some one during the whole diurnal period, and that they are accordingly prepared to verify the continuous character of the cases in question; still, taking into consideration that other observers, witnessing the same or similar epidemics, did "*bona fide*" see remissions, I think I am thereby authorized in at once maintaining the periodic character of these fevers, and in assigning the cases in which remissions did not appear to the category of those already described as the masked fevers in Jamaica, Northern Africa, and elsewhere, "simulating a continuity of morbid process."

Now, as to the laws which regulate the propagation of the febrile disease generally.

Under certain circumstances, owing to some unknown agency, a virus is, or rather has been, eliminated, possessing inherently a twofold property. First, it is able, in a predisposed living body, to produce certain pathological phenomena; and, secondly, to create, through the medium of the aforesaid living body, a virus in all respects similar to itself, and therefore capable of a like reproduction. The necessary predisposition is occasionally enhanced either by telluric or atmospheric causes. The virus is termed a specific contagion[a], and the disease so originating and propagating itself is deemed contagious or infectious[b].

Again, under other circumstances, and by a very different though equally mysterious process, a virus is eliminated in a certain locality, having, in like manner with the last-named poison, the property, if a predisposed person come within its reach, of inducing a particular disease. This virus is, however, quite destitute of the power of originating a self-disseminating disease, and its effects are, therefore, limited. If a predisposed person inhabit the locality where it exists, he is also liable to undergo the specific morbid affection; if he remain out of the

[a] Few subjects are more mysterious than the origin of a specific contagion. We can no more comprehend the original process of its elimination than we can explain the appearance of the first organized being. We say it is a morbid secretion, the existence of which, along with its definite qualities, is inferred by its evident effects. Can such an agent be generated *de novo?* If so, is it probable that this novel generation occurs frequently? Is it, moreover, probable, that such generation should often be the result of fortuitous or artificial combinations? It is easier to propound such queries than to answer them. To me, however, it appears not satisfactorily proven, that any single contagion has ever, under any circumstances, been redeveloped.

[b] It is a singular circumstance that the negro constitution, so little affected by miasm, is yet peculiarly obnoxious to true contagions like variola or syphilis. See some striking illustrations of this fact by Staff Assistant-Surgeon Daniell, pages 43–48, in his "Sketches of the Diseases of Guinea," published in 1849.

locality, he is safe. A disease so originating, and so propagated, is styled endemic.

In some cases it is alleged that a virus may be generated by causes which are entirely local, and which yet, *ab initio*, possesses in addition a self-disseminating property, although the said property may not be always "appreciable." The resulting disease arises, at first, from the endemic virus solely. In the majority of cases thus developed there exists no apparent self-multiplying power,—in a small minority, however, this power is actually imparted, and, under certain circumstances, not merely assists, but is able of itself to propagate the disease. "*A priori*" this complex law of propagation could never have been deduced, and its very existence is still, perhaps, not quite satisfactorily proven.

A fourth law has been laid down by many authors. It is imagined that a disease may, through certain artificial combinations, secondarily assume a contagious power; nay, even that after this assumption, the said disease may, under favouring circumstances, lay down its lately acquired property. However popular this view may be, to me it appears a most untenable hypothesis,—the *origin de novo* of a specific contagion must be among the rarest of all phenomena. I do not mean to deny that an endemic disease, originally mild, may occasionally, without any real increase in the virulence of the endemic virus, become aggravated, alike in frequency and malignancy. This occurs under various circumstances,—such as poverty, exposure to cold and damp, inhabiting crowded, ill-ventilated houses, &c. &c. Under these and similar errors, an endemic disease may assuredly become epidemic and virulent, neither directly, however, by increased malignity of the original virus, nor yet by the acquisition of any new superadded contagious property, but indirectly by the increased predisposition of persons situated in the unfavourable position above described.

Finally, if it can be shown, that in a certain disease the arguments in favour of endemic origin are in a great majority of cases quite irresistible, and that this hypothesis will, moreover, account for every instance whatever of such disease, at least plausibly; whilst, on the other hand, the assumption of a self-disseminating property can only explain the existence of a minority of instances of the disease, and quite fails in rationally accounting for all the rest,—then it is but fair to conclude that the said disease is local only, and that any further hypothesis in favour of the existence of a contagion is unnecessary, unwarrantable, and therefore unphilosophical.

In the preceding pages I have stated, as a matter of per-

sonal observation, that the fevers witnessed by me in Jamaica were invariably ruled by the principle of periodicity; this as a matter of fact, resting upon my credibility or competence as a reporter, I must here consider proven. I have further assumed that this periodicity is the direct effect of an unknown cause, which is usually termed miasm, and which, whether entirely telluric, or occasionally somewhat modified in its effects by malaria, originates in and is remarkably attached to particular localities. It follows, *a priori*, that a disease developing, as its main characteristic, this peculiar feature, must necessarily be of local origin; that where the obscure cause exists, there, providing predisposed persons be present, the disease, the direct effect, may exist also; conversely, that where the cause exists not, neither can the disease.

A query now arises,—can an *a posteriori* argument, founded on the history of the disease, be maintained, tending to confirm this assumption of a local origin? To prove the affirmative answer to this query will now be my endeavour.

Three other propositions regarding the propagation of these malignant forms of fever have each been affirmed and ably supported. First, that this disease is, *ab initio*, endemic and contagious. Secondly, that it is endemic only, but, under certain rare circumstances, it can assume a self-multiplying power. Thirdly, that it is wholly contagious and not of local origin at all.

These three hypotheses, although very different in themselves, may all be entertained, and with sufficient accuracy for my present purpose, by inquiring, has malignant periodic fever, under any possible supposition, a self-disseminating property?

In every argument it is justly deemed illogical to attempt to prove a negative position. The "onus probandi" devolves upon those who maintain the affirmative; their opponents endeavouring to show either that their facts are incorrectly stated, or that their reasoning is unsound.

I do not, therefore, mean to attempt to prove non-contagion as it is called. My present task is simply, in answer to the first query, to maintain the following position;—to wit, that the history of malignant fever leads to the conclusion, that it is a disease which originates and is propagated through the agency of a local cause. In the course of this argument it will indirectly appear that the alleged proofs of the existence of any self-disseminating property, of any specific contagion, are, agreeably to the rules of evidence, altogether irrelevant.

Three[a] historical facts (at least as such I claim them, and

[a] The existence of these three facts is abundantly demonstrated in the Reports from Jamaica, &c.

confidently appeal to the testimony of every officer who has served five years on the island, and one during an epidemic); three facts, then, I repeat, appear to demonstrate, in a satisfactory manner, the local origin and propagation of these lowland malignant fevers. First, if fever prevail epidemically in a barrack or other locality, the removal of its inhabitants to the higher range of mountains at once stays its ravages, be the disease ever so malignant. This fact could not be denied. It was alleged in reply that the cessation of fever was the direct effect of diminished temperature. Then, making a hypothesis for the occasion, it was maintained that the same caloric, which confessedly tends to extinguish all true contagions, was absolutely necessary to produce and support the one in question. It was added, its virulence was in direct ratio of the present temperature. The second fact, which is equally incontrovertible, meets this objection, groundless as it is[a]. When, owing to causes little known, the lowlands, generally, are devastated

[a] Extracts from a Report written by me in Jamaica, in 1837, to illustrate the effects of removal of troops from positions where the local cause of disease exists, to others where at the same time it exists not, or only in a very modified form:

1. In 1819, owing to an outbreak of fever in the 50th and 92nd regiments, at Up Park, five companies were removed to Fort Augusta and Stony Hill. Among these companies scarcely any sickness prevailed, whilst their comrades left behind died with fearful rapidity. As the season advanced more men were sent from the affected locality, but having been so long exposed to the epidemic influence several deaths occurred, though far fewer, probably, than would have been had they remained at head-quarters. Ultimately all were removed except 100 left in charge of the stores, &c., of which last body only 25 escaped.

The two regiments remained at Fort Augusta and Stony Hill, and sickness at length disappeared. The 50th continued healthy until the end of the year, when the corps returned to Up Park. On the 24th November fever recommenced: within 96 hours there were 51 admissions, 42 more followed rapidly, and in six weeks there were 184 admissions and 40 deaths.

2. In 1822, when the 33rd and 91st regiments arrived in Jamaica they lost at Up Park, in less than four months, 8 officers, 157 men, 16 women, and 27 children, although the strength of the garrison at no one time exceeded 500 men. The post was evacuated, and the regiments were distributed between Stony Hill and Fort Augusta. They occupied these quarters for several months, and during this period only 9 deaths occurred, 7 of which happened within a few days after leaving Up Park.

3. In February, 1825, fever appeared at Stony Hill among the men of the 77th regiment. In a very short time there were 270 cases and 60 deaths. In March 220 men of this corps were distributed among the troops between Fort Augusta and Up Park, a detachment of 30 being left at Stony Hill: of the former only 4 died during their stay at these two posts, and these were attacked within twenty-four hours after leaving Stony Hill; of the latter only 6 escaped.

4. In the autumn of the same year fever recurred at Stony Hill and Spanish Town. The plan of encamping in the same locality was tried, and, as is well known, proved a most signal failure: indeed the epidemic became rather aggravated than otherwise.

5. In 1827, at Fort Augusta, the 84th regiment was, by the same disease, threatened with annihilation. In ten days, after a change to Stony Hill, the fever was arrested.

by a malignant epidemic fever, as in 1780-81-82, 1793-96, the only certain place of refuge is to be found in the upper highlands; but when, as in 1799, at Fort Augusta, these, or similar causes, operate for the time in a particular district only, then the same cessation of disease attends a removal of the inhabitants of the affected district to any other lowland locality, even though such locality be inhabited by other predisposed individuals; it is found that, excepting a few cases which may fairly be supposed to have brought the seeds of the disease with them, the epidemic entirely ceases; it is also found that the said cases run their course, but leave no successors, the original inhabitants remaining unaffected. The former circumstance proves the existence of a local cause of disease, and both indirectly throw discredit upon the hypothesis of a self-disseminating property. The third fact, which tends to support these views, would almost alone prove conclusive, if there yet be any faith given to the old adage, "ex nihilo nihil fit." In the healthiest years in the lowlands we are ever and anon startled with the appearance of sporadic cases, often of the most malignant type. Sometimes there is a solitary case; sometimes there are two or three. They appear—the victims are swept away; but they leave no successors. Whence came they? In the whole district, at the time, there may not be another case of the like nature, and we may hear of no more for months afterwards[a]. A striking instance of this description is narrated by Dr. Musgrave at Antigua. The *locale*, too, of these isolated fevers may be some secluded spot where the victims have resided for the past year, rarely visited by Europeans, except, perhaps, by the contractor from the neighbouring estate. Again, I inquire whence came these fevers, whence did they derive their contagion, and why have they no successors? All their comrades may be as susceptible as they were. The following season may sweep them off in their turn. Admitting these three facts, I cannot conceive any mind, accustomed to receive the ordinary laws of evidence, which can deny assent to my position, that *the lowland fevers of Jamaica,—endemic, simple epidemic, or malignant epidemic,—arise and are propagated by local causes.* These facts, moreover, indirectly cast discredit on the assumption, that a disease so remarkable, and so peculiar in its local habits, can, under any circumstances whatever, owe its dissemination to a contagious property.

It is now allowable to refer to a fourth fact, which has been verified and quoted alike by contagionists and their opponents

[a] Dr. Fergusson mentions two at Demerara, on the authority of Dr. Donkin; Mr. Daniell also mentions two at Gibraltar.

in support of their respective views. It is this,—in the same locality, in the same barrack, sometimes in the same room, one body of troops may be decimated by fever, whilst another may remain comparatively healthy. On inquiry it is found that the former have resided less than two years in a warm country, whilst the latter have possibly been above five years quartered in such a locality. Sir William Pym has concluded that troops in the latter case owe their comparative immunity from malignant fever to a previous attack of that disease. This, as far as Jamaica is concerned, is an entire misapprehension. What proof exists in the well-known case of the epidemic in the 54th regiment, in 1808, that the other regiments had been previously attacked by malignant fever? I know many similar instances between 1834 and 1845. In these I do not mean to assert that the whole or a part, or even one man, had during his five years' residence in the island, remained unaffected by pyrexia in some form; very far from it; all probably have undergone the febrific ordeal; all have suffered but from the usual seasoning fever, or bilious fever, as some style it, which, however, Sir William Pym maintains is quite distinct from malignant epidemic fever, and which, if his view be correct, cannot surely confer an immunity from an attack of that disease. This fact cannot be explained away, at least by the asserters of three distinct varieties of tropical fever; therefore, upon their principles at least, it must tend also, indirectly, to cast discredit upon the hypothesis of contagion.

The most popular argument alleged in favour of a self-multiplying power is derived from the arrival of a ship at a healthy port, with fever on board, being in a few and comparatively rare instances immediately followed by an outbreak of a similar fever on shore[a]. It is here worthy of remark, that in all such cases hitherto recorded, those of the "Bann" and "Eclair" not excepted, the localities were always such as, *a priori*, would lead us to conclude that at any time severe fever might prevail, and that, in point of fact, such fever had previously prevailed, although, perhaps, at a distant period. Besides, if malignant fever were propagated, like variola, by a specific contagion, and if it existed on board ship, it would invariably spread on arrival at any port when meeting with predisposed persons. This sequence, however, is not the rule, but the rare exception; for the arrival of the great majority of ships with this form of fever on board is not followed by any similar out-

[a] On this point a Committee of Physicians of New Orleans rightly conclude, "where sufficient causes exist to engender disease in one place, it is useless to speculate on the question of its importation from some other place."

break on land. Neither can the difficulty be altogether evaded by assigning deficient temperature as a frequent cause of its non-propagation. Malignant fever has prevailed with the thermometer below 70° or even 57°[a].

As far as regards the West Indies this argument appears most unsatisfactory. There is no year, scarcely any season of the year, that ships do not arrive with fever[b] on board, and that some of these cases do not terminate fatally with black vomiting. Should an epidemic prevail at the time, the arrival passes unnoticed; should the circumstance occur in a healthy year, and no sickness follow, the arrival is equally disregarded; but should it so happen that any unusual virulence of miasm soon after causes a marked increase of fever on land, the inhabitants, anxious, as all are, to remove the fancied stigma of insalubrity from their own dwelling, proclaim as a fact the importation of a contagious fever. With the popular voice "coincidence ever proves causation." Even the colonist of Sierra Leone has occasionally fancied that the fever which spreads around him is of European importation[c]! On this subject, generally, the happy remark of Inspector-General Dr. Fergusson on the case of the Regalia should ever be remembered.

It is also a matter of importance to know that the labours of Chevrin and Bancroft (indeed, I may add, Arejula himself) have proved satisfactorily that several of the most remarkable cases of alleged importation (Barcelona, Cadiz, and Grenada, for example) rest upon evidence either defective, contradictory, or utterly false[d].

[a] Philadelphia, October, 1793 and 1797. Gibraltar, 1813.

[b] Hume says, in 1741-2, 1653 seamen died at Jamaica in the hospital only.

[c] For instance, the Caroline from Malta in 1822.

[d] The evidence in favour of the importation of malignant fever into different parts of Western Africa and the adjoining islands, also into ships at sea, appears to me generally defective, inasmuch as any hypothesis in favour of contagion must be greatly invalidated under the following circumstances:—First, where local causes exist from which, *a priori*, it is reasonable to expect the presence of malignant fever among European residents. Secondly, where these causes on several occasions previously have produced fatal remittent fever, even among the black and coloured population. Thirdly, where malignant fever has actually existed on some previous occasion without the least suspicion of its having been of contagious origin. Fourthly, where it is impossible, or nearly so, that any communication could have existed between the infected individuals or their *fomites* and the individual with whom the secondary epidemic has apparently originated. Fifthly, where fever breaks out in a ship after lying off a coast in which at the time local causes exist sufficient to produce such disease. Sixthly, when fever appears in a ship at sea in which, by the confession of all competent parties, causes are present sufficient to originate such fever, and which, at some subsequent period, do actually produce a similar affection, even after undergoing the usual purification. Seventhly, where persons contracting fever in a given

To return to Jamaica. I am not aware whether any ship has ever been specifically accused of importing malignant epidemic fever into this island.

It is by some, however, still alleged that, through the "Hankey" the "vomito negro" was introduced into Grenada, and thence to the other West Indies, including, of course, Jamaica. Sir William Pym brings forward evidence to show that for "a series of years" previously to 1793 this island was healthy! Amongst other authorities he calls upon Dr. John Hunter, an officer who has given a most graphic account of the malignant fever as it appeared in his day, and who also details the result of several post-mortem examinations conducted as far back as 1741. The fever, then epidemic (from 1780 to 1782), was evidently identical with the three most remarkable epidemics it was my fortune to witness, viz., 1835–37, and 1840–41–2. It was sufficiently severe sometimes to kill "during the first paroxysm, and even in the space of twelve hours." The vomiting was "sometimes constant and violent, especially in the worst cases of the disease," and "the blood being frequently in a dissolved state," was "forced into the stomach, and thrown up, forming what has been called by the Spaniards black vomit." Dr. Hunter then gives the following details of what appears to have been one of the most appalling epidemics on record.

"1780.—93rd. Kingston.—In six months one-half dead; nine-elevenths of the whole dead or discharged.

"85th. Rockfort and Up Park.—Five-twelfths died the first year; nearly one-half dead or discharged.

"92nd. Spanish Town.—Five-twelfths died; about eleven-twenty-fifths dead or discharged.

"94th. On detachment.—First year one-half dead; at the end of two years and four months, six-sevenths dead or discharged.

"There died in the above regiments from August to January rather more than two-fifths of the numbers landed.

locality embark and actually die on board, and yet fail in communicating the disease to their shipmates. Eighthly, where an epidemic in full virulence on board ship suddenly stops, although within tropical latitudes, leaving unaffected a number of persons whose predisposition to malignant fever is proven by their falling victims on a subsequent occasion. Ninthly, where the alleged period of incubation considerably exceeds the space allowed for this stage by the most eminent advocates of contagion. Tenthly, where the alleged facts in support of the existence of a self-multiplying property rest on mere "hearsay" evidence. I may add, in conclusion, that in the West Indies fever has appeared on board ship when off an unhealthy coast, previously to any intercourse being held either with the shore or with any other vessel.

"1779–80.—60th lost three-elevenths by death; 79th, two-sevenths by death, next year, five-eighteenths; 88th, one-third by death, and in two years and four months, 550 out of 791.

"Average deaths in the command, from 1780 to 1782, 1 in 4, annually; discharges, 1 in 8; total loss to the service, three-eighths.

"In four years, actual loss to the service 5250."

So much for the salubrity of Jamaica before 1793.

Colonel Tulloch's report, which includes the memorable epidemics of 1819, 1825, and 1827, shows that the average loss to the service by deaths and invaliding was 1 in 7 only. Nor was the sickness at this time peculiar to Jamaica. In 1780–1 the mortality at Lucia equalled the average strength of the garrison.

Lastly, the epidemic fever which undoubtedly prevailed in Jamaica during 1793, 4, 5, 6, more especially 1795, actually commenced in that island as it did in Charleston, in 1792. It proved fatal that year to the commanding officer of the 20th Dragoons, an officer's wife, and several men; also, about or before the Christmas of 1792, several fatal cases occurred amongst the officers of the 20th regiment. It will be remembered that the "Hankey" did not even arrive at Grenada till February, 1793.

It has been maintained, as before stated, that malignant tropical fever, though originally endemic merely, may, under certain circumstances, become secondarily contagious. It has been observed that the crew of a ship, after leaving a locality where this disease prevails, frequently becomes affected by it. In some instances it happens that the earlier cases are not very numerous, and, though often fatal, their type is not of the very worst description. In a few weeks, however, the epidemic increases in severity, and spreads in a very remarkable manner, as on board the Bann, Eden, Scout, &c.; it is thence argued, that the increase in the number and severity of cases depends on the secondary acquisition of a self-disseminating property.

To render this view even feasible, it is necessary to show,—First, that the affected ship has been too short a time in the tropics to become saturated with miasm. Secondly, that the timbers of the said ship, &c. &c., are in themselves free from all impurity: this, of course, requires a minute examination. Thirdly, that the result of observations carefully made and accurately recorded, shows that no remarkable atmospheric variations had occurred at the time. Fourthly, that the increase of the true fever commenced so long after leaving land as to render

in a high degree improbable the inference, that it could have been the result merely of telluric miasm.

Even should the result of investigation on these points not tend to throw discredit upon the hypothesis of contagion, we still, fortunately, have an analogous case on shore, in which the true cause of the pathological phenomenon just stated is pretty clearly developed. In a barrack-room the same progress and marked increase of malignant fever has been observed, and was formerly attributed by some to the agency of a self-multiplying power. It has been generally found, however, that, by removing half the inmates of the affected room, there was for a certain time at least a marked diminution in the proportion of cases occurring in that room, even if the men removed were kept in the same barracks, and allowed free communication with their comrades, sick or well. From this it would appear that the increase in severity manifested during such febrile invasions, whether on board ship or in a barrack-room, is to be ascribed merely to increased predisposition, the result almost invariably of over-crowding, insufficient ventilation, or the like. 750 cubic feet of air per man are required within the tropics even on land: this can never be obtained at sea.

In conclusion, it may be remarked, that among the phenomena of comparative rarity observed in reference to this disease, is the attack of a surgical or other patient, and, as a rule, the hospital attendants suffer not more than their comrades, perhaps rather less. In the expressive language of Inspector-General Dr. Fergusson, "the hospital is the place of safety."

Colonel Tulloch and Inspector-General Dr. Marshall, in their very able and elaborate Report, have maintained that the mortality in Jamaica increases directly with length of residence. Fevers, if not the only, are by far the most frequent, source of this mortality. It follows, then, that fatal fevers increase with length of residence, and, therefore, if a man survive his first attack of malignant fever, and remain in the country, he becomes continually more liable to undergo a second. This doctrine, although supported with much ingenuity, appears to me erroneous; and I have endeavoured elsewhere to show that the reasoning on this point in the Report rests on various unobserved fallacies.

Sir William Pym and others, as it has been stated, uphold a proposition nearly converse, alleging that one attack of malignant fever bestows on its survivor a perfect immunity from a second. If by malignant fever be meant merely a pyrexial disease terminating in black vomit, I can of my own personal

knowledge urge but little in reply. After the occurrence of this symptom I have never seen a single recovery[a]. Highly respectable authorities, however, both military and civil, state that, in such cases, recoveries, although confessedly very rare indeed, have been witnessed. Amongst civil practitioners I may specify Dr. Dyett of Montserrat, Dr. Musgrave of Antigua, and Dr. Fergusson[b] of Kingston, Jamaica. It has also happened that some of these rare instances of recovery have been subsequently attacked with black vomit fever, and died. Inspector-General Dr. Fergusson relates one such case, on the authority of Dr. Caddell of Barbadoes. On the other hand, if by malignant fever be meant a pyrexial seizure, exhibiting *inter alia* the orbital headach with peculiar expression of eyes; the pale lemon tint of skin; or sometimes a bluish mottled appearance; the hemorrhage from the gums; very dark and liquid evacuations; intense gastric irritability; diminished flow of urine; peculiar, feeble, intermitting, and most compressible pulse; with general appearance of prostration of the powers of organic life, &c., &c.,—if such a group of symptoms occurring epidemically, and in the more severe instances terminating before the completion of the fifth day in black vomit and death, whilst the less severe cases convalesce; if such constitute an instance of malignant epidemic fever, then, among the fortunate survivors, I have seen many instances of a second attack[c].

[a] Neither did Staff-Surgeon Doughty, who in Jamaica and Spain saw many hundred cases.

[b] This gentleman succeeded Dr. Bancroft in the Presidency of the College of Physicians and Surgeons of that island.

[c] If a person recovering from severe fever proceed to Port Royal, Port Henderson, or such like stations in the lowlands, he convalesces slowly, yet generally without relapse; or, if he be sent to the upper central highlands, he also convalesces without relapse, and in a much shorter time than in the former case; but if he proceed to the lower range of highlands, especially if he select a spot among the serrated mountains of St. Andrew's, St. David's, Port Royal, &c., he is there likely to be attacked with intermittent, and that too with some severity.

Both in temperate and tropical regions, owing to occasional errors, there is sometimes produced an artificial malaria; accumulated putridities, whether animal or vegetable, whether solid, fluid, or gaseous; imperfect ventilation; overcrowded dwellings, &c.; are among the more conspicuous causes whereby such an atmospheric condition is generated.

In Northern latitudes this artificial malaria greatly aggravates the typhoid form of synochoid fever; within the tropics, like true malaria, it increases individual susceptibility. Hence a person dwelling within its influence, who, under other circumstances, might have been able to resist the agency of miasm, is rendered amenable to the inroads of febrile disease.

It follows as a corollary that this artificial malaria can, by artificial means, be dissipated; that this increased personal susceptibility may thereby be prevented; and fever, whether extra- or intra-tropical, be greatly modified, if not removed.

To escape from miasm and true malaria, it is necessary to flee from the locality

Relapses, as already stated, and their usual sequence, visceral disease, are, however, comparatively rare in this affection.

It is not, by the preceding remarks, meant to deny, that after recovery from the first fever of whatever kind, there is a diminished liability to severe invasions of pyrexial disease. The person, in fact, becomes acclimatized[a]; for miasm is a poison to which, in many instances, the human constitution appears to become as much habituated as to the use of tobacco, opium, &c. But this fact, so far from being new, has been known ever since we have had West Indian colonies.

According to the views laid down in the preceding pages, the malignant fever of the western tropics is a miasmatic disease of local origin solely, and therefore exhibiting no self-disseminating property; also, unable to confer on a survivor a perfect immunity from a second attack. Is this fever, then, identical with the malignant epidemics of the eastern tropics which are confessedly of miasmatic origin? This question has usually been answered in accordance with preconceived opinions of the origin of the western disease. Some, however, in denying the identity of these two grand forms of tropical fever, have rested their denial entirely on the presumed absence in the eastern disease of the characteristic black vomit. This appears to be a misapprehension; for, although far from being so frequent, still, according to established authorities, this symptom has been found in almost every region eastward of the Cape, where miasmatic fever has prevailed epidemically, viz., in the memorable Edam fever on the coast of Batavia, as related by Shiels; in Rangoon, as detailed by Walsh; in Ceylon, by Cameron; in the Peninsula of India, by Johnson, Annesley, Clarke, &c.; and in Moulmein in two cases out of eight[b]. It may, in fact, be affirmed, that black vomit is far more frequently present in the eastern, than absent in the western tropic.

It would appear, also, that the dark yellow colour, the pale lemon tint, and the livid discoloration of skin, with the black vomit and black-coloured diarrhœa, frequently observed in all tropical malignant fevers, are of a hemorrhagic nature, and proceed from the same causes, viz., alteration in the blood, a characteristic effect, though not, as some have imagined, the proximate cause of this peculiar disease.

which they inhabit. No other plan will avail. But to conquer artificial malaria is ever within our reach by destroying its artificial causes.

[a] Some persons are acclimatized by dysentery. This was my own case, and a severe ordeal it was.

[b] *Vide* British and Foreign Medico-Chirurgical Review, vol. i. p. 382.

In conclusion[a], then, I conceive I have demonstrated the truth of the following theorems:—

1st. The lowland fever of Jamaica is periodic in its aspect, and local in its origin, therefore its different varieties are to be regarded as essentially one disease, the same in kind, though differing greatly in degree.

2nd. A disease local and periodic, as above described, is, reasoning by analogy, unlikely to possess a self-disseminating property.

3rd. All the proofs hitherto adduced in support of the alleged existence of such a property are altogether irrelevant, and, therefore, may safely be disregarded.

4th. Among Europeans an attack of severe pyrexia of any kind diminishes, within certain limits, the liability to a subsequent seizure; but the alleged perfect immunity from a second attack, conferred by a certain description of fever on its survivors, is disproved by experience.

[a] I should, perhaps, state that this essay was written in 1849, which will account for the omission of any reference to occurrences of a later date.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Sixth General Report on the District Criminal and Private Lunatic Asylums in Ireland, with Appendices. Presented to both Houses of Parliament by command of her Majesty. Dublin: Thom. 1853. Folio, pp. 32.

Seventh Annual Report of the Commissioners in Lunacy to the Lord Chancellor, 30th June, 1852. Pursuant to the Act 8 and 9 Vict. c. 100, s. 88. Ordered by the House of Commons to be printed, 5th April, 1853.

Return to an Address of the House of Commons, dated 9th December, 1852, *for Copies of all Reports of the Commissioners in Lunacy as to the State and Management of Bethlehem Hospital.* Ordered by the House of Commons to be printed, 14th December, 1852. 8vo. pp. 451.

Twenty-third Annual Report of the Belfast District Hospital for the Insane, to 31st March, 1853. By Robert Stewart, M. D., Resident Physician-Superintendent. Pamphlet, pp. 52.

The Journal of Psychological Medicine. Edited by Forbes Winslow, M. D. Nos. for October, 1852, and January, April, and July, 1853. London: John Churchill.

Popular Errors on the Subject of Insanity Examined and Exposed. By James F. Duncan, A. M., M. D. Dublin: M'Glashan. 1853. Post 8vo, pp. 265.

The Nature and Proximate Cause of Insanity. By G. J. Davey, M. D. London: Churchill. 1853. 12mo, pp. 76.

The Present State and Prospects of Psychological Medicine, with Suggestions for improving the Laws relating to the Care and Treatment of Lunatics. By J. Seaton, M. D. London: Churchill. 1853. Pamphlet, pp. 23.

Cretins and Idiots: a short Account of the Progress of the Institutions for their Relief and Cure. London: Wighton. 1853. Pamphlet, pp. 32.

Elements of Psychological Medicine. By D. Noble, F. R. C. S., Medical Officer to the Clifton Hall Retreat, Manchester. London: Churchill. 1853. 12mo, pp. 340.

The American Journal of Insanity. Nos. for July, 1849; January and April, 1851; October, 1852; and January and July, 1853. Published by the New York State Lunatic Asylum, Utica.

Twentieth Annual Report of the Carlow District Hospital for the Insane Poor of the Counties of Carlow, Kildare, and Wexford, for the Year ended 31st March, 1853. By M. E. White, A. M., M. D., Resident Physician. Pamphlet, pp. 21.

Twentieth Annual Report, to 31st March, 1853, *of the Maryborough District Lunatic Asylum, for the King's, Queen's, Westmeath, and Longford Counties.* By T. C. Burton, M. D., Resident Physician. Folio, pp. 4.

First Annual Report of the Kilkenny District Lunatic Asylum for the County and City of Kilkenny, to 31st March, 1853. By J. Lalor, M. D., L. R. C. S. I., Resident Physician. Pamphlet, pp. 16.

Fifteenth Annual Report, to 31st December, 1852, *of the Suffolk County Lunatic Asylum.* By J. Kirkman, M. D., Superintendent Physician. Pamphlet, pp. 30.

Fifth Annual Report of the Somerset County Asylum for Insane Paupers, to 31st December, 1852. By R. Boyd, M. D., Medical Superintendent. Pamphlet, pp. 60.

Second Annual Report of the Wilts County Asylum, Devizes, for the Year 1852. By J. Thurnam, M. D., Medical Superintendent. Pamphlet, pp. 44.

Annual Report of the Royal Edinburgh Asylum for the Insane, for the Year 1852. By D. Skae, M. D., Resident Physician. Pamphlet, pp. 50.

Thirteenth Annual Report of the Crichton Royal Institution for Lunatics, for the Year ended 11th November, 1852. By W. A. F. Browne, M. D., Resident Physician. Pamphlet, pp. 44.

Tenth Annual Report of the State Lunatic Asylum of the State of New York, for 1852. By N. D. Benedict, M. D., Superintendent and Physician. Pamphlet, pp. 39.

The above long list of publications in connexion with psychological medicine has been accumulating upon our table since our last stated annual review on "Insanity and Hospitals for the Insane"[a]. On the present occasion we purpose noticing them in the order in which we have given their titles, just premising that amidst such a mass of valuable matter the difficulty to be encountered will be, how to devote sufficient attention to each. We must only, therefore, endeavour to mete out something like justice to all; and among so many, should any not receive as much notice as it may merit, we beg our readers to ascribe such omission to our anxiety to give as perfect a review of the important subject as is possible in the limited space necessarily allotted to us for this purpose.

1. The Commissioners of Hospitals for the Insane in Ireland have here presented to the Lord Lieutenant their Sixth Annual Report, dated May, 1853, the subjects discussed in which are exceedingly interesting, and the statistics appended, as usual, very complete and instructive. It embraces a review of the condition of the district, criminal, and private hospitals and houses for the insane in this country for the last two years, from the 1st of April, 1851, to the 31st March, 1853.

We shall first notice some of the more salient points in connexion with the district establishments, sixteen of which are referred to in the Report; namely, Armagh, Ballinasloe, Belfast, Carlow, Clonmel, Cork, Kilkenny, Killarney, Limerick, Londonderry, Maryborough, Richmond (metropolitan), Waterford, Omagh, Sligo, and Mullingar. All the above hospitals are in full operation, with the exception of the two last, which were not completely finished at the date of the Commissioners' report. During the two years stated, the total number of admissions, of both sexes, was 2103; the males predominating,—they being 1064, and the females 1039. Of this aggregate number 346 were idiots, and the larger proportion thereof females; the sexes being respectively 168 males and 178 females. The epileptics were 385, the great majority being, on the contrary, males, viz., 266, and only 119 females. The

[a] Vol. xiv. No. 28, N. S.

total number of cures effected was 815,—409 males and 406 females, a very close approximation. The deaths were 530,—277 males, and 253 females. The number which remained under treatment on the 31st March, 1853, was 2870,—1417 males, 1423 females; 1661 of whom were chronic or incurable cases. The largest number of patients contained in any one hospital was at Cork, namely, 353, and the smallest in Clonmel and Waterford, being respectively 128. As to employment, we give the following interesting and satisfactory items. Of the total (2870) under treatment during the year 1853, 1440 of both sexes were engaged in varied avocations, so desirable in such institutions; for it may be stated as an established fact, that for the restoration or amelioration of the "mind diseased,"—and this as well for the rich as the poor,—there is nothing to be compared to regular systematic occupation, more especially out of doors, as far as possible; no establishment for the treatment of the insane can in consequence be considered complete unless a large tract of land is immediately attached to it,—the minimum proportion being ten acres to every hundred inmates[a]. The employments of the male patients were, we find, gardening, husbandry, weaving, tailoring, shoemaking, carpentering, &c. &c.; and that of the females embraced spinning, needlework, knitting, quilting, fancy work, laundry work, &c. The total outlay for 1853, on works and land, was £987 5*s.* 5*d.*; the produce, £2800 13*s.* 11½*d.*; and the net profit, £1813 8*s.* 6½*d.*

The following description of the newly erected hospitals for the insane we quote in full, not, however, without observing, that we abide to the fullest extent by our opinions expressed in former reviews, that great room for improvement still exists in the entire system in operation regarding the construction of these important public establishments,—a system which we hesitate not to declare is behind the age, and will be so as long as a central body like the Board of Public Works is permitted to exercise the despotic power it does in all that relates to their erection and planning. Serious and unaccountable delay in their completion is not one of the least causes of complaint against the Board of Works, whose supineness in this important point, when the necessity of the case is so peculiarly urgent, is certainly not free from reprehension. This is but too manifest when, for instance, as regards the Omagh Institution, for the accommodation of 250 patients, no less a period of time, as we find from the Report before us, than six years has been already

[a] A statute acre to every six males is the average proportion of land, one with another, in the district establishments.—*Report*, p. 10.

consumed in its erection, and how much more will be still expended it is difficult to say;—in strong contrast with which it may be stated that the gigantic establishment, the Colney Hatch Hospital, for between 1200 and 1500 inmates, was, from the time of the laying of its foundation stone until completed as contracted for, built in less than eighteen months[a]. But how was this? The answer is easily supplied; there was no such body as our Board of Works over it, to act as a drag with its red-tapeism in every movement made. No! the local authorities were thus happily unfettered, and a city for the insane finished, whilst a corridor of the Omagh was scarcely more advanced than above the foundations! It has often been a puzzle to us to know how it comes to pass that the landed gentry and ratepayers of this country, who have to pay every farthing of expense in connexion with the erection and maintenance of hospitals for the insane, consent to be bound hand and foot in all that regards a voice in their erection, &c.—being quite satisfied to pay the money, and submit to the iron rule of the "Star-Chamber Court in the Custom House," as the Board of Works has been appropriately styled by an eminent presiding judge of one of our highest courts of judicature.

"Although not immediately coming within our province—the architecture and outlay attendant on contracts for the establishment of hospitals for the insane resting solely with the Commissioners of Public Works—still as the designs are, in the first instance, referred to our office, we may here give a general outline of the asylums recently erected. The radiated plan, as being less airy and cheerful, though, perhaps, interiorly more commodious, has been superseded in them. They are constructed on the same principle, three stories in height, for the sake of economy, with an extended frontage. The centre, in which are placed the officers' apartments, projects, as also both ends, for the most part occupied by day rooms: the kitchen, laundries, stores, &c. &c., are in the rere, and central. The style partakes of the mediæval, with a certain amount of decoration; oriel windows, buttresses, turrets, and ornamental cut stone being in some buildings more profuse than in others. The proportion of single rooms, averaging one with another 750 cubic feet, forms about a third to the accommodation in dormitories, which contain from four to twelve beds each. The corridors run in front, and along the wings: connected with them are lavatories, water-closets, baths, &c. In the infirmaries (generally detached) provision is made for invalids, at the rate of about 10 per cent. of the whole number of inmates. Everything characteristic of a prison appearance, whether within or without, is avoided as much as possible. Due attention has been paid to warmth and ventilation, and commodious places

[a] See our fourteenth volume, page 405.

have been appropriated for religious worship, in some instances apart from the main structure, as at the Eglinton and Richmond."

The continued good working of our Institutions for the Insane Poor is thus endorsed by the high authority of the Commissioners:—

"To the successful results attendant upon the operation of the district hospitals for the insane in Ireland, during the last two years, we are happy to bear our official testimony. In a curative point of view they uphold a high character, as will be found by a reference to the recoveries on recent admissions in the early stage of the disease, as well as by an examination into the social condition of their inmates. Two great divisions practically exist in establishments of the kind, the one embracing chronic, the other acute cases; the former are principally influenced by a system of mental culture and corporeal employment, whilst the latter require a medical or more special treatment. The recoveries on the whole admissions, within this period, average 35 per cent."

This is a proportion which must be pronounced to be extremely satisfactory, bearing a most creditable comparison with similar establishments in the sister kingdom, in France, and in America.

We are obliged to pass over the sections in the Report having reference to various important matters of detail, such as,—"Infirmaries (which are so properly attached to all the new, and to several of the old institutions); Instruction (the Armagh and Richmond are very favourably mentioned under this head); Gas; Dietary (the remarks upon which, and the necessity of a generous one, are entirely to our mind, and deserving of the best attention); Sanitary Condition (reported as being generally good, except in Cork, where scurvy prevailed for a time, owing to excess of farinaceous and deficiency of animal and vegetable food); Incurables," &c. &c.,—in order to give the annexed extracts:—

"With the exception of five, the asylums in Ireland are now under the immediate care of resident medical superintendents, who devote themselves to the success of their respective institutions. The non-professional gentlemen at the head of the five establishments in question, from their zeal and long practical experience in the management of the insane, deserve our warm commendation; at the same time, on principle, we are fully convinced that no new appointment of manager should be made except in the person of a duly qualified practitioner.

"Connected with every asylum is a consulting or visiting physician, whose services, in addition to those of a medical superintendent, may by many be deemed uncalled for; but affections of the

mind are so complicated, and the consequences arising from them often so dangerous and unforeseen, that though attended with expense, it is a judicious outlay; for if on any subject there obtains a greater variety of opinion it is on that of the existence of lunacy in certain parties,—conclusions the most adverse being frequently arrived at on the same case by educated and experienced practitioners, a circumstance almost unknown in regard to corporeal disease.

"While on the subject of officers and attendants, we would take the opportunity of respectfully expressing our conviction, that it is necessary for the well-working of these great national establishments, that a retiring allowance should be secured to those who have long and efficiently discharged their duties to the public and to those intrusted to their care within the precincts of an asylum,—a place of all others which unfits a person advanced in years for after employment. At present there is no superannuation fund whatever, and thus, we are occasionally obliged to retain the ineffective services of individuals, who, having no means of support to fall back on, it would be an injustice to supersede. As provision on this head has been made for the staff belonging to other Government departments by the present Lord Chancellor, when Solicitor-General, we confidently trust that a clause for the same object will be introduced into the next Lunacy Act."

In our former reviews we have fully expressed our opinion on the above subjects, and need only now in addition remark, regarding consulting physicians, that such officers are not being appointed to any of the new county hospitals for the insane in England; and even in some of the older, where they formed a prominent portion of the medical staff, they have been or are being dispensed with, as at Bethlehem and Hanwell. In the United States of America also, in which the institutions for the insane are second to those in no country for a system of internal government of a high order, it is, as far as we have the means of knowing, the exception to the established rule to have consultants.

The great injustice of withholding retiring allowances is anything but creditable to those upon whom the responsibility lies. The strong manner in which the Commissioners have now again, much to their credit, brought forward the question, can scarcely fail to obtain immediate and prompt attention in the proper quarter.

In the discharge of an imperative duty we are constrained to record our entire dissent from the views now and formerly put forth by the Commissioners on a most important point, affecting the best interests and continued good working of our district hospitals for the insane. We allude to the suggested

reception into them of "paying patients not in the category of paupers." We feel no hesitation in pronouncing this suggestion both unwise and impolitic; being calculated to engender the most serious difficulties in their management, and lead to results never calculated upon by its promoters, who, no doubt, are actuated by the best possible motives in proposing this organic change. We trust our worthy and excellent Inspectors will reconsider this point, and sure are we that they will not throw their official weight into the scale for its adoption. We are perfectly satisfied that it is both their desire and intention to increase the usefulness of the district hospitals for the insane; and this being admitted, we earnestly beg of them to give no sanction to "paying patients" of any denomination being admitted. Our district hospitals, as such, are noble and philanthropic establishments:—alter their constitution, and you will lay the foundation for abuses which no "central authority" could remedy or prevent. The plan has been tried in England, and has signally failed in one institution in particular—the Staffordshire, and has therefore been given up. The principle has also been mooted in others, but rejected as a most improper one. What is required to relieve "agriculturists and people in trade, who themselves are the principal parties assessed for the support of public asylums, and who are devoid of sufficient means to meet, when labouring under insanity, the terms of well-regulated licensed houses" (Report, page 11), is a special institution set apart for their own exclusive care and treatment, the want of which is a grievous social evil, and a blot upon the benevolent age in which our lot is cast not to have been long since established. In our last Review, when noticing Dr. Henry Monro's and Mr. Dickson's respective publications, we earnestly called attention to this subject, and now again refer to it in the hope that it may obtain that consideration which it so loudly demands.

An account of the "Central Asylum for Criminal Lunatics" occupies a large portion of the Report, and from it we would gladly quote some interesting extracts did our space permit. It must be sufficient now to state that its inmates are mentioned as conducting themselves in a very orderly and industrious manner, and the affairs generally of the institution to be most satisfactory and creditable under the judicious and excellent superintendence of Dr. Corbet, the Resident Physician and Governor. The Commissioners have some special remarks bearing upon the peculiar difficulties of such an institution in its management, particularly as regards those of its inmates who are

unimpaired in their mental and bodily faculties, and yet who must be detained indefinitely within its walls as "lunatics." They state, too, that at the present rate of admissions the establishment will, in the course of a few years, be too limited for the demand, unless "full discharges" are permitted. And as another source of relieving its anticipated redundant population, they make a suggestion the policy of which we most decidedly dissent from. Its adoption would be nothing short of an abnegation of the principle upon which the Central Asylum was founded. This is the proposal:—"To remove patients who may become fatuous and decrepit to their respective district hospitals, a discretionary power to do so resting with the Lord Lieutenant, and provision being made for their reception in the Order of Council submitted (by the Commissioners) for the management of the Asylum." Now, for what purpose was the Central Asylum specially established? Was it not to remove the stigma from the district hospitals of holding within their walls criminals of a particular class? Was not their presence therein found in practice to be a "plague-spot" upon these institutions, and a perversion from their legitimate purposes,—that of curative hospitals? And did not such a system tend to keep up the idea which is still so unhappily prevalent amongst the public, that insanity is a disease of degradation? The district hospitals long felt this sore *incubus*, but at length it has been removed in Ireland,—a result now earnestly wished for in England.

This asylum, we find, contained a total of 109 inmates on the 31st March last (69 males and 40 females), their mental condition being as follows:—

"Recovered,	13	8 males,	5 females.
Improved,	17	7 „	10 „
Insane,	79	54 „	25 „
Total,	109."		

The average cost of each inmate during the last year was £24. Varied employment is provided, and carried on to a considerable extent. The general health was remarkably good, and no casualty has occurred since the opening of the institution, which speaks volumes for Dr. Corbet's efficient superintendence, though if such had, it could not possibly have detracted from the high character of the institution. An unsuccessful attempt at suicide (and but one) was made during the past year, that of a man who killed a soldier (*not on duty*, as the Report states, but *a prisoner*) in Belfast gaol.

The Report concludes with a statement of the condition of the private establishments, twelve of which (with 423 inmates,—245 males, 178 females) were in existence, all, with the exception of three, being under "the immediate management of respectable members of the medical profession, some of whom had attained a very high character from their successful treatment of the insane."

Elaborate and very carefully drawn up statistics form the Appendix of the Report (the more important features of which we have embodied in the preceding analysis), to which is added a copy of a memorial to the Lord Lieutenant from the Board of Governors of the Belfast Institution against the appointment of chaplains, and the reply made by the Inspectors to his Excellency thereon. To the latter point we need not here further specially refer, as the whole of this remarkable and important question will be better discussed when we come to review the Report of the Belfast District Hospital for this year.

2. The Seventh Annual Report of the Commissioners in Lunacy (England) is up to the 30th of June, 1852; but it was only in April last it was ordered by Parliament to be printed. In our review of the one that immediately preceded it[a] we ventured to refer to several points of interest in which we considered it was defective as an official Report of high authority, and suggested that such might not be overlooked in future. We are happy to find that in some respects the Report before us is fuller in details than hitherto, still there are palpable deficiencies, the existence of which we regret. We now especially allude to the entire silence of the Report upon the results of treatment in the several public and private hospitals for the insane in England and Wales, coming under the official notice of the Commissioners. We said before, and we now repeat it, that this is a most serious omission in an otherwise valuable "Blue Book." It is all very well giving now, for the first time, the most voluminous details respecting the number of "male and female officers, male and female attendants, male and female servants, &c. &c;" "Salaries[b], wages, and allow-

[a] Vol. xiv. No. 28, N. S. p. 386.

[b] On reading this portion of the Commissioners' Report we were much struck at finding that the services of the resident medical officer of the Bristol Asylum (having the charge of 101 patients) were remunerated by the liberal annual salary of £50, and no "allowances" of any kind, exactly the same as given to a subordinate officer of the institution, the clerk (p. 109): and that the chaplain even received £60 as his annual stipend for the performance of a duty comparatively a sinecure; further, and still more scandalous and insulting to

ances" (even to the matters of "small beer" and "vegetables"), of the different public establishments for the insane, occupying thus sixty-nine pages out of a total of one hundred and twelve, a sacrifice of space to the exclusion of much more important statistical information. We nevertheless hope that this defect will yet be made good; and we appeal with confidence, on this subject, to the medical members of the Commission, who owe it to themselves and the profession to attend to it. But, to proceed with our analysis of the Report, we find that, during the period it embraces, four county asylums have been opened for patients, viz., for the county of Derby at Mickleover; Middlesex at Colney Hatch; Union of Monmouth (consisting of it and three other counties) at Abergavenny; and the county of Wilts at Devizes; that new asylums were nearly ready, being likely to be opened at the close of the year (1852) for the counties of Warwick, Worcester, Lincoln, Hants and Bucks:—so that in England, as with ourselves, rapid strides are being made to afford suitable receptacles for the indigent insane, who were too long unthought of and uncared for. The Commissioners, in the exercise of the power vested in their hands, very properly, we are glad to perceive, put a veto upon a site laid out for a Welsh asylum, owing to its insalubrity, by reason of close proximity to a neighbouring swamp and to copper smelting and patent fuel works.

The spirit of the following extract we highly commend. Its common sense and common justice are patent; and, coming from so high and independent a source, is deserving of being attended to by those in power, who too fondly grasp at every source of patronage, be it ever so humble:—

"We have invariably recommended that the resident medical officer, as the manager and presiding authority in a new asylum, should be elected to his office, and that his salary should begin to run some months at least before the building is opened for the reception of patients. The amount of additional salary thus incurred will be far more than saved, if, during the intermediate period, the committee have the benefit of his active services and advice in the laying out of the yards and grounds, in the fitting up and furnishing of the asylum, and in selecting the subordinate officers and attendants, and regulating their respective departments and duties."

The Commissioners complain in strong terms that the local

the medical profession, that a mere menial in the same asylum receives £31 4*s.* as his annual *wages*, with "board, lodging, and clothing" into the bargain. We strongly advise the house surgeon of the *liberal* paying Bristol Asylum to change places with the menial, and doff the doctor for the nonce.

authorities of boroughs (fifty and upwards in number) have not made legal or adequate accommodation for their pauper insane, and submit accordingly that the higher powers should enforce the performance of the obligations imposed on them, by compelling due provision to be made for their care and treatment in public asylums. The character of the country for common humanity is called in question by this shameful carelessness and neglect of a most solemn duty, which, by setting at defiance the spirit of an express enactment of the Legislature, will be seriously compromising to those whose duty it is to take immediate steps to provide against the continuance of an evil so great in magnitude. St. Luke's Hospital comes in for a large share of special observation, favourable and unfavourable, as to its condition and management. Its system of superintendence is thus reported upon, with suggestions for improvement, which, before this, we take for granted have been carried into full effect. The "*paramount*" authority in all establishments for the insane being vested "in *some resident medical officer, rather than* in any *non-resident physician or surgeon*," is the principle which we years ago advocated, and its decided recognition now by the Commissioners, as the only sound one to be pursued in hospitals for the insane, is a happy confirmation of our views being just and reasonable:—

"The hospital of St. Luke's, like that of Bethlehem, is placed under the medical care of one resident surgeon or apothecary, together with two physicians and a surgeon (having considerable controlling power), who attend the institution, but do not reside there. In the course of our recent Report to the Home Office, on the condition and management of Bethlehem Hospital, we have taken occasion to suggest, that any new arrangement of the medical staff there should comprehend the services of (at least) two resident medical officers, one of whom should have paramount authority in the hospital, and should be responsible for the whole of the internal management thereof.

"Without reference to the regularity or duration of the visits made by the medical visitors of St. Luke's, or any other hospital, or the attention bestowed by them on their patients (which have not been the subject of any especial inquiry on our part), we think it right to state our opinion to be that, in all the various lunatic hospitals and public asylums of this country, the paramount medical authority should be invariably vested in some resident medical officer, rather than in any non-resident physician or surgeon, whose means of observing the wants and condition of the patients must necessarily be less perfect, and that the authority and responsibility of such resident officer, so far as respects the care, treatment, and

comforts of the patients, should not be shared or interfered with by any other person whomsoever."

Bethlehem Hospital comes next in the Commissioners' Report, but as we shall refer to the special Parliamentary Return respecting it further on, we will proceed to notice the Report on the "Licensed Houses," some of which would appear in great need of reform. For instance, the one called "Oulton Retreat," near Stone in Staffordshire, is strongly animadverted upon, for the excessive and improper restraint, imperfect ventilation, irregularity in keeping the case-book, and a general want of diligence and energy in the management. At "Bellevue House," Devizes, a female was secured by the leg to a seat in the yard; two males, both paralyzed, were fastened by straps to chairs to prevent them falling forward, one of them was suffering from sores on his back, and the other was in a wet and dirty state. The Infirmary Asylum at Norwich is largely and severely censured for its very defective system of management, and the borough justices plainly warned, that if they persist in neglecting to make a fit provision for their lunatic paupers, the Secretary of State will be applied to on the subject. The Norfolk County Asylum at Thorpe, Norwich, would also, we have reason to believe, require a reform in its management, the medical and moral treatment of its inmates being, strange to say in these days of progress, not under the *paramount* (we like much this expressive word of the Commissioners, the scope of which there is no mistaking) authority of a resident medical superintendent, but in a divided state, a state, however, which it is to be hoped will not be permitted longer to continue. But it would be a profitless task further to comment upon the condition of the "Licensed Houses," which, with some honourable exceptions, are held up in the Commissioners' Report in a most unfavourable aspect, so much so as to cause us to regard their state as a disgrace to the country; we are, therefore, truly gratified with the straightforward and uncompromising yet temperate manner in which the Commissioners have discharged their duty towards those of them deserving reprobation.

The subject of the best disposal of "criminal lunatics,"—a distinctive term which, though used in the Report, is, at the same time, objected to, would seem to be an inextricable juggle still to our Commissioners in England. For ourselves we can see no difficulty at all in the matter. It is manifest to all that they should not be associated with the ordinary inmates of hospitals for the insane. On this head there appears

to be no second opinion. We must say, however, that there has been no small amount of hair-splitting and wire-drawn distinctions on the subject in England. We would cut the Gordian knot at once by consigning them to a central establishment like that at Dundrum, which is affording such general satisfaction. Surely there should be no doubt as to the propriety and absolute necessity of this, seeing that it has been carried into effect in one portion of her Majesty's dominions, and this so far back as 1845. That such has not been long since done in Great Britain is truly not a little anomalous, especially when we find, by the Report of the Commissioners, that no less a number than four hundred and thirty-nine criminals (360 males and 79 females) are *imprisoned* in *hospitals for the insane!*

Some very excellent and practical "suggestions" respecting the management of asylums are contained in the Appendix of this Report, all of which we would gladly reproduce, but that our analysis of the Report generally has far exceeded what we had anticipated. We must therefore content ourselves with the following extract:—

"*Suggestions. Resident Medical Superintendent.*

"This officer should be duly qualified both as a surgeon and apothecary (whether possessing a degree or not). He should have *paramount* authority in the asylum, and be precluded from private practice, and should devote his whole time and energies to the duties of his office. He should be a person of high character and experience, and be liberally renumerated. With regard to salary, the Commissioners find that in the various county asylums the salaries vary from one hundred and fifty to five hundred pounds per annum, to which is to be added, where (as is commonly the case, and is always most desirable) he resides on the premises, furnished apartments, with coals, candles, and generally also board, or an equivalent in money for the same. The Commissioners consider it the preferable arrangement that there should not be any visiting physician, or other medical visitor with a salary, but that in lieu thereof the resident medical superintendent should have the power to call in medical or surgical advice, on extraordinary occasions, at the expense of the asylum. If there are honorary physicians or surgeons attached to the institution, their services would be gratuitous, unless when they were so specially called in.

"In the event of the asylum becoming full, or nearly full, it may be advisable to appoint an assistant medical officer, with board and lodging, at a moderate salary, say, from fifty to eighty pounds per annum. Such an arrangement has been adopted in many of the large asylums, e. g. Lancaster, Kent, Stafford, &c."

3. With reference to the voluminous "Blue Book" containing "a Report of the Commissioners in Lunacy on the state and management of Bethlehem Hospital," we deem it quite unnecessary to occupy our limited space by doing more on the present occasion than recording it as our decided conviction, after a perusal of the evidence on both sides, that the medical officers of that institution, more especially Dr. Wood, the then Resident in charge, upon whom the brunt of the battle fell, were "more sinned against than sinning," in connexion with the charges of cruelty and neglect that were brought forward, and the public odium which was endeavoured to be so unsparingly heaped upon our profession in their persons. "A house divided against itself cannot stand;" and if ever there were divisions in a house or an institution, it was in Bethlehem Hospital, amongst the non-professional authorities, from the governors and treasurer to the matron and steward. Indeed, our only wonder is how matters got on as well as they did, and that still graver and more serious abuses had not occurred within its walls. It certainly was not from either the assistance or co-operation of these parties, who, instead of being ancillary to the medical men in carrying on the duties of the hospital, by receiving their suggestions and attending to their directions, enacted quite a contrary part.

The high-handed manner especially of the treasurer, a paid lay officer, towards Dr. Wood, the only resident medical man, upon whom the whole charge in reality of the hospital devolved, was truly most insulting and derogatory. Then again the matron, in her way, was despotism personified on the female side of the house. And here we think it worthy of special remark, that all the abuses stated to have been perpetrated and systematically carried on were chiefly on the female side in the notorious "basement" story. We are quite unable to pursue this painful and discreditable subject further, and though we had intended giving some quotations from the Report before us, we are compelled to satisfy ourselves with but one on the present occasion, which we take from Dr. Wood's "observations," and with the spirit and scope of which we fully concur:—

"The discipline of a regiment could not be maintained without the services of subordinate officers; neither could a large number of servants, whether in a private establishment or in a public institution, be properly controlled without the intervention of some authority between them and the master or superintendent; and yet such has been the position of affairs at Bethlehem. With very imperfect organization, divided authority, and little co-operation, but with the demon of discord constantly brooding over the place, it is

not surprising that Bethlehem Hospital has failed to realize the expectations of those who felt that, with the sanction of royalty, possessed of ample revenues, and commanding the services of the most eminent men of the day, it ought to have become a model institution."

4. Dr. Stewart's Twenty-third Annual Report of the Belfast District Hospital for the Insane brings the affairs of that institution up to the 31st March, 1853, the terminating period at which all the public hospitals for the insane in this country complete their yearly cycle, a general regulation, it may be observed, which has much to recommend it. The annual statement affords at a glance some of the more important "facts" of the years preceding.

	Males.	Females.	Total.	Males.	Females.	Total.
On the Books, 1st April, 1852, . . .	..	..	..	152	128	280
Admitted since, new Cases, ...	45	61	106			
Do. Relapsed, ...	5	4	9			
				50	65	115
Total under reatment during the year, .	..	..	..	202	193	395
Discharged recovered, ...	26	41	67			
Do. relieved, ...	9	12	21			
Died, ...	14	11	25			
				49	64	113
Leaving in the House, 31st March, 1853,	..	..	..	153	129	282

Daily Average Number of Patients during the year, ... 280.01
Average Expense of each Patient including every charge, £12 17*s.* 11*d.*

Of the fifty males admitted during the year, seventeen were married, and thirty-three single; and of the sixty-five females, thirty-one were married, five widows, and twenty-nine single. With reference to age, ten were under twenty years; thirty-nine from twenty to thirty; thirty-three from thirty to forty; eleven from forty to fifty; fifteen from fifty to sixty; and seven from sixty to seventy. Alleged causes of insanity were assigned in only fifty-eight of the 115 admissions; and of these twenty-five were physical (intemperance being the chief), and thirty-three moral. The subject of criminal lunatics being no longer received into the district asylums is specially referred to as a great relief to those establishments, a constant source of irritation to the patients in ordinary being thus removed, and the happy results, accordingly, amply compensating for the labour and time so largely expended in accomplishing an object so desirable. The dietary of the patients (at the instance of the physicians) was

improved during the year by an increase of twelve ounces weekly of animal food to each patient, the former allowance being but six ounces. The accommodation continued insufficient during the year, the house being crowded throughout, and great difficulty, as might be expected, was experienced, in its daily conduct, as well from this source as from the new buildings in course of erection for the last twelve months, which the Report states were progressing in an exceedingly tedious manner, and without any prospect of being completed at the specified time. These additions to existing asylums we, in a former review, considered exceedingly questionable, and we see no reason to change that opinion, but rather more strongly to reiterate it. Great expense and continuous excitement must be the unavoidable concomitants by this mode of procedure; the former never giving any satisfaction in proportion to the large sums expended in endeavouring to improve what cannot be improved from architectural difficulties, and the latter necessarily very injurious to so peculiarly circumstanced a class of patients. Entirely distinct buildings, when requisite, should be erected on another portion of the grounds, when such are extensive enough to admit of this being done, or, if not, a separate establishment entirely should be provided in a convenient part of the district. Every day's experience is making it more and more evident that large establishments for the insane are most undesirable. But so long as economy continues to be the *primum mobile*, the one thing needful in those matters, and not, on the contrary, what is best for the cure or amelioration of so dire an infliction as insanity, it will be with little avail, possibly, to denounce it. We but discharge our duty, however, in again and again protesting against the system under consideration.

Intemperance, as a fruitful exciting cause of insanity, is specially referred to by Dr. Stewart, and a suggestion made, deserving, we think, of the best consideration, which is, that reformatories for habitual drunkards should be established.

It appears by the Report that the question of erecting a chapel and appointing chaplains had been one of anxious deliberation to the governors at a number of meetings, the invariable result being that the proposal was negatived by a large majority. At these meetings we find men eminently qualified to give sound advice in consequence of their position in society, of their local knowledge, of their education, of their professional pursuits, of the absence of all interested motives, and, above all, of their experience of the institution. Their solemn decision was, " that after mature consideration of the

peculiar circumstances of the population of this district, the Board are of opinion that the system of religious instruction[a] adopted on the 3rd of March, 1834 (the Bishop of Down and Connor presiding), and which has hitherto been found so successful, should be continued; and that consequently the erection of a chapel, which seems to involve a numerous staff of chaplains, and the probable introduction of religious controversy and excitement among the patients, is inexpedient."

It is well known that, of all the exciting causes of insanity, religious enthusiasm is one of the rifest; that its effects are the most lasting, and the prospects of the sufferer the most hopeless. Often in the course of a long professional life have we witnessed the miserable effects of mistaken duty in religious observances, the gradual encroachments of an excited imagination on a weakened intellect, and the final break down of an overpowered mind. What, in such cases, are the beneficial effects expected to be produced by imbuing the mind with that which originally caused its overthrow: will it restore the fabric?—are men to be cured of a disease by that which has been proved to be one of its most fertile causes? The decisions of three Lords Lieutenant on the chaplain question, as regards the Belfast Asylum, have affirmed the principle of religious homœopathy by prescribing a remedy capable of producing the same symptoms as those of the disease; if the principle is to be carried out at all, why should it not be done in harmony with itself,—by the administration of infinitesimal doses? The plan would answer a double purpose; the Lord Lieutenant must approve of it inasmuch as it is only the sequel of his own principle; the Board of Governors must be satisfied with it, because it is nothing more than that on which they have hitherto most prudently acted. All parties would be then agreed:—

> "Concordiâ parvæ res crescunt, discordiâ
> Maximæ dilabuntur."

Religion—the never-failing consolation and ultimate re-

[a] This carefully guarded and efficient system is expressed in the following resolution of the Board:—

"That on a wish being expressed by a patient to be visited by a minister of religion, the manager of the asylum, if he is of opinion that such visits are not likely to produce an injurious excitement in the patient, but are likely to be beneficial to him, be authorized to request the attendance of a clergyman of the Established Church, whether the parochial clergyman, or, with his permission, the clergyman of the parish to which the patient belonged before his admittance; or of a minister of such other denomination as the patient may have belonged to before his admittance, if he should give a preference to such other minister; subject, however, to the same local limitation as in the case of the clergyman of the Established Church."

source of the Christian of sound mind—requires, like other remedial agents, the co-operation of skill in determining the condition of the person in whom it can produce its beneficial effects, and the extent to which it should be exhibited. The combination of medicine and religion professed by the monks of old was, after all, not without its advantages. The one taught the time, the other the manner, of calming the disordered mind by the exhilaration of hope and trust in divine mercy. We are of opinion that a clergyman, unaided by the physician, is not in a condition to be intrusted with the religious management of the insane. The physician, accustomed to the aspect and character of the sufferer, knows by a glance the moment when he is accessible to the consolations and exhortations which are calculated to calm his mind and reach his heart. Religion is not to be urged during the period of incapacity to appreciate its value, and when resistance, in proportion to importunity, is a characteristic of that miserable state. To allow the uncontrolled exercise of the clergyman under all conditions of the patient,—perhaps to subject a demented creature to suffer under the distracting influence of proselytizing arguments,—would in a great many cases defeat its end, and create a permanent antipathy to the well-intended but indiscreet ministry of the pastor. Besides all this, have we not some knowledge of the ill effects of the uncontrolled exercise of clerical duties by pastors of different creeds performing their office under the same roof? Have we not evidence of the collisions which have taken place; the animosities which have been engendered; the vindictive accusations which have provoked exasperated defences; and the acrimonious partizanship that distracted the investigations which followed? What security have we that all these evils might not result from the antagonism of zealous pastors frequently replaced, and therefore little accustomed to the studiously concealed peculiarities of madmen. Religious partizanship would disseminate a wild and dangerous fanaticism amongst lunatics; and he would be a sanguine man who should expect to maintain the "comfort and tranquillity" which are now admitted to be so conspicuous in the Belfast Institution.

By the Order in Council, 1843, the Board of Governors of the Belfast Asylum were enjoined to make regulations for the admission of clergymen, to visit in that character any patients of their own persuasion, and for the celebration of Divine Service before such of the inmates as their respective clergymen *and the physician shall deem fit to attend the same.* In this unrepealed Order of Council is embodied the very principle which

we here advocate, and which has hitherto been acted upon. The clergyman is not to act *ex officio* without the approval of the physician: he is not to enter the house as a matter of right, and exercise his functions as an independent chaplain; but the Board are to make regulations for his *occasional* admission when sent for. That Order in Council was never known to have worked badly or to have been inefficiently carried into effect. Quite the reverse; for the accredited reports of the Government Inspectors agree in representing the management as productive of happiness and tranquillity. Why, then, by new and unnecessary interferences and regulations, stigmatize and tacitly condemn what has not been arraigned?

There is, however, another aspect of this question, and one the most important to our profession, which has hitherto not been treated upon in the angry controversy that has been for so long a time carried on between the Government and the Governors of the Belfast Lunatic Asylum,—its purely medical bearing. What are the District Lunatic Asylums of Ireland? *Prisons for the safe detention of the insane, or hospitals for the treatment of insanity!* If the former, regard the inmates as mad prisoners, give them hard labour, punish them with low diet, chains, and close imprisonment, and compel them each Sabbath and holiday to attend the set services of the religion which they may select for themselves. If the latter, place the afflicted inmates under the care of a wise physician, let him minister through the body to the mind diseased, using all the measures, medical and moral, he may deem fit, aided too, when his judgment directs, by the ministrations of religion. In private practice a physician is called upon to treat an hysterical patient whose symptoms border on insanity,—demands he the assistance of a clergyman to supersede him in his duties? Or it may be a case of acute mania,—does he order the patient to attend the public service of his Church? In their own families, for their own friends and relations, the public implicitly intrust the management of those unhappily afflicted in their mind to the physician; why depart from this system with the pauper lunatic? We assert, in a word, that these asylums are not gaols or poor-houses, but *hospitals for the treatment of insanity*, a special disease, but to be treated, like other diseases, by the medical attendant under whose care those afflicted with it may be placed, and by him alone.

5. Dr. Forbes Winslow, the able and persevering editor of the Journal of Psychological Medicine, cannot be too highly commended or generally supported for his indefatigable zeal in

the branch of medicine to which his periodical is specially devoted. Each number is more and more interesting, being always replete with matter of the utmost value, and this not merely to the psychological physician, but also to the profession generally, and in part to the reading portion of the public at large. The contents for October of last year, January, April, and July of 1853, the numbers now before us, fully bear out the above statement. We only regret our inability even to particularize the several articles of the numbers enumerated, so pressed are we for space; but we confidently recommend the Journal itself to our readers as one which will amply repay an attentive perusal, and be a most important, indeed we might say an absolutely indispensable, addition and acquisition to the library of every professional man who wishes to keep pace with the daily advancing and increasingly important science of which it is the British exponent. To show that Dr. Winslow's literary powers and high personal worth are not unappreciated, we may, in conclusion, observe that the very high distinction—an honorary degree of Doctor in Civil Law, was conferred upon him in June last by the University of Oxford.

6. Dr. Duncan's volume is a work well worthy of being closely studied, containing matter very instructive and deserving of the best consideration, of both the professional and the general reader. The author writes like a man who knows his subject well, and accordingly the several important points discussed by him are treated in a thoroughly practical manner. The work is divided into fourteen chapters, which are entitled as follows:—

"Popular errors as to the nature of Insanity. Definitions of Insanity. Evidence in proof of Insanity. Suicidal Insanity. Homicidal Insanity. Moral Insanity, Cleptomania, Pyromania. Religious Insanity. The Management of the Insane. The Curability of Insanity. The Confinement of the Insane. Actions for false Imprisonment. Commissions of Inquiry. On the abolition of all Proprietary Lunatic Asylums, and the establishment of National ones in their place."

The chapter on "Religious Insanity" is, we conceive, unexceptionable in matter and argument on that so-called species of mental disturbance. The following short extract in connexion with it is much to the purpose, and with the author's views we quite agree:—

"When we read in books, as we sometimes do, of cases of insa-

nity which are set down as the result of religion, it will be found, on a careful examination, that either the origin of the cases has been grossly misapprehended, so that religion had nothing whatever to say to the production of the malady, or that what has been called religion was only some of those perversions of the truth which did not properly deserve the name."

The annexed extract, taken from the chapter on "the Management of the Insane," is in the best spirit, and from many years' "actual observation" ourselves in the treatment of the insane we can bear the fullest testimony to its soundness:—

"It ought, I am persuaded, not only on the immutable principles of right and wrong, but from actual observation in a large number of instances, to be laid down as a fixed rule, never to mislead a lunatic by false representations, or by flattering promises, which the person making them has no intention of performing. A simple, straightforward course, uniformly followed, directed at the same time by sound judgment, will almost certainly secure the confidence of the patient, and get him to do with comparatively little trouble what, under a different system, no amount of persuasion would succeed in effecting."

We regret that we cannot afford space for more extracts from Dr. Duncan's admirable volume, which we earnestly commend to the notice of our readers.

7. Dr. Davey's contribution to the literature of psychology "On the Nature and Proximate Cause of Insanity" is stated by its author to have been read in substance by him at a meeting of the Medical Society of London, in January of the present year. He adds further that the principles of pathology and therapeutics set forth in it were first published in 1842, in an Essay entitled "On the Pathology of Insanity," and that since then he has unceasingly insisted on those principles both orally and in published writings; and, what is more, *practically* carried them out in his private and public capacities. The author specially directs the attention of Dr. Henry Monro to this statement, that gentleman having, he observes, published in 1850 a small book, in which not only are the same views advocated, but of which he states he has, "strange to say, claimed the parentage or first authorship."

The author appears to have an unfortunate facility of coming into collision with other parties. It is not so very long since, in one of our reviews on insanity[a], a work of his styled "Contributions to Mental Pathology," came under our notice,

[a] Volume x., New Series.

which was surcharged with a supertartrate spirit from beginning to end; and here again, in our next meeting in cold type tartaric acid is still in excess, and a *rechauffé* even of that same curious "contribution" given in the form of a "Postscript," occupying eighteen pages, being nearly a fourth of the whole book now published. One would be almost tempted to think from this circumstance that the object of the present volume was chiefly to gratify an unsubdued hostile feeling and personal pique to certain parties with whom the author was so ill-associated a few years ago in Ceylon. This, however, is a matter we need not pursue farther than to call Dr. Davey's special attention to the following extract from his work now before us, which we think might be useful as well for himself as the public, on whose behalf he has given it, to meditate over; it is from Good's Study of Medicine:—

"The passion of *anger*, and all its compounds,—suspicion, revenge, and especially jealousy, must make a much wider inroad upon the domain of a well-ordered mind, and introduce confusion and derangement. Nor is the effect confined to the head, for a stimulus thus virulent affects the entire system, and, as we have already observed, has a peculiar sympathetic influence on the liver, producing in many instances a very diseased secretion of the bile, and altering it in a very short period, not only in its quality, but in its quantity. At the same time every vessel is exhausted of its irritability, and the whole strength is so prostrated as occasionally to lead on to obstinate faintings, convulsions, and death."

For ourselves we cannot see anything that is so very specially new or imposing in Dr. Davey's views as to the nature and proximate cause of insanity, defined by him to be a "*morbid sensibility of the gray matter of the brain.*"

"I have come to the conclusion, that insanity is most decidedly a disease of debility, and this fact is made evident, not only by its occurring very much more commonly than otherwise to those who have either inherited a weakly and delicate constitution, or whose excesses or extravagancies of life, or misfortunes, have induced such a state of things,—but by its attacking persons who may happen to be exposed to any accidental or temporary cause of exhaustion, such as hemorrhage, night-watching, the puerperal state, &c. . . . The symptoms which characterize the mental disorder in each are not those belonging to an increased vascularity; the heart's action is rapid, but *feeble;* the temperature of the skin is not generally increased, nor is the countenance flushed. . . . . The wildness of manner, and automaton-like movements which mark an attack of mania, are, then, the direct effects of a morbid sensibility of the cineritious neurine, or gray matter of the brain;—what was 'use,'

or power, has become 'abuse,' or *action without power;* and this the consequence of the application of a stimulus too intense, or long-continued, or disproportionate, in some way, to the healthy physical capacities of that portion of the cerebral structure named. *In the gray matter of the brain, then, is located the proximate cause of insanity.*"

So much, then, for "the principles of pathology set forth." Dr. Davey's "therapeutics" have not much of novelty in them either. They are contained in the following paragraph, with which we must take leave of his book:—

"The *treatment* found most efficacious in lunacy is precisely that required in the management of the "*neuroses;*" whenever cerebral derangement, or neuralgia, or chorea, or tetanus, or asthma, or angina pectoris, is found complicated with local inflammatory disorder, increased vascularity of the structures involved, local bleeding is practised with good effects; counter-irritation, and mercurial alteratives (with the occasional employment of opiates), are then also prescribed. But apart from such a complication in those several maladies named, the indications of treatment required are equally applicable to any one or other of them. It will be, I apprehend, readily conceded, that in *all*, it is of the first importance to establish a normal action of the *prima via* (?), thereby insuring a healthy state of the secretions and excretions, both as regards quality and quantity; in *all* the necessity to counteract the debilitating influences of diseased action in the system by the use of tonic remedies, as quinine, steel, &c., and so to preserve the constitutional powers, as far as possible, unimpaired, is sufficiently apparent to every practical man."

8. The *brochure* of Dr. Seaton, entitled "the Present State and prospects of Psychological Medicine," has for its object the improvement of the laws relating to the cure and treatment of lunatics in licensed houses, and with much spirit and energy its author denounces the present order of things in connexion with private establishments for the insane. On this head Dr. Seaton observes:—

"The truth is, that in the majority of cases, the chief, in many the only, concern, seems to be how the patient may be *safely kept;* hence we see that proprietors of asylums are very frequently non-medical men,—indeed frequently women, persons merely trading for a living as private gaolers, whose only business is the *safe keeping* of the lunatic; but as no prison is complete without a doctor on the staff, there is of course a regular visiting medical attendant to the asylum, so that if the lunatic should be attacked with a fever, or an inflammation, he may die decently. With the psychological management of the patient the medical man has nothing to do, and psychological management has nothing to do with the patient.

Strange! that in this country, and in this age, patients labouring under disease so fearful, and frequently so mysterious in its origin, and insidious in its progress, as to require for its elucidation medical attainments of the highest order, and even then often defying all human efforts for its alleviation,—strange, I say, that such patients should be left to the treatment of non-medical, and not unfrequently altogether non-educated persons."

In common with our author, it has frequently struck us as being a most anomalous and pernicious state of the law, that any party (leaving ignorant men and women keepers of the insane altogether out of the question) but a thoroughly well-educated member of the profession should be permitted to enter upon so responsible a duty as the care and treatment of the insane. The large number of persons entirely deficient in either educational or professional status sanctioned by the law of the land to have and retain lunatics under their charge, looks, it must be admitted, very like, to quote again from our author, as if "the direct tendency of every step taken by the Legislature on the subject of lunacy was to degrade instead of to elevate the character of all who may be engaged in its investigation. Every Act of Parliament seems to be founded upon the assumption that none but knaves would have anything to do with lunatics."

In remarking upon the English Commissioners' "Seventh Report," in our present review, we have referred to the very unfavourable state of the "licensed houses" in England; and it is certainly no great wonder that the official report should be so condemnatory, when those establishments are in so many instances presided over, as Dr. Seaton informs us, and no doubt truly, "by persons merely trading for a living as private gaolers." The commission in lunacy in England, Dr. Seaton justly observes,—a remark we have incidentally made ourselves elsewhere,—should "as a rule, all other things being equal, be filled by medical men;" and also, that as the medical profession is directly concerned in all their regulations, "it should be duly represented at the Board, by the President of the College of Physicians and the President of the College of Surgeons being *ex officio* members thereof."

With these few quotations and remarks respectively, we must leave Dr. Seaton's pamphlet, which appears to us as being well deserving of the notice of all parties directly interested in the several matters discussed in its pages.

9. The pamphlet which has been forwarded to us relating to Cretins and Idiots, and giving an account of the progress of

the institution founded for their relief and cure, is of a very unpretending nature, but not the less interesting and suggestive. There are few persons, we presume, who have not heard of the name of Guggenbühl, a man worthy of imitation in all lands for genuine benevolence and philanthropy. We are proud to claim him as a member of the medical profession, and to hold him forth as one to whom society at large owes a deep debt of gratitude for the lasting benefits which he has been so privileged and successful an instrument in conferring upon the unfortunate cretin and idiot, a class of human beings so miserably low in intellect, and so debased in habits and propensities, as to be scarcely above the level of the brute.

Dr. Guggenbühl, a native of Zurich, happening in the year 1839 to observe a poor cretin muttering a prayer before a crucifix, the nature of which he did not comprehend, was so struck by this circumstance that he became immediately convinced there was a dormant mind in cretins, and determined to make them his peculiar study, he rightly conceiving that "a being in whom it was possible to awaken a thought of God was worthy of every sacrifice and labour; it being of more value to save one human soul than to gain all the treasures of the world." Actuated by so exalted a principle, he took up his abode in the valley of Cleinthal, in the Canton Glarus, where cretins abound, when, after some attempts to improve them, he became so satisfied of the possibility not only of their relief but of their cure, that he renounced all other medical practice to devote his whole energies to their behalf. For this purpose he fixed upon Abendberg, an elevated spot on the Alps, for erecting an hospital. This place was singularly adapted for the object in view, being sheltered by mountains from cold winds, and affording in front a splendid and varied prospect; and, being 3000 feet above the level of the sea, was beyond the elevation at which cretinism exists. In this place he commenced in 1841 with twelve children in a very degraded state, physically and intellectually; but after the lapse of a period less than two years, all were more or less benefited, and some of them nearly cured. The following description of one of the patients by Dr. Twining, who visited Abendberg in 1842, will give some idea of the apparently hopeless task Dr. Guggenbühl had undertaken—

"On a bed lay a female child of about three years of age, exhibiting cretinism in its highest degree. She was wrapped in a cloth, so that her face only was visible. The lids of the eyes were constantly quivering, and the eyes rolling; the tongue large, and so swollen that the saliva was running from the mouth; and all her

limbs were moving convulsively. So dreadful a sight could scarcely be imagined: a human being, denied not only of all which characterizes a rational creature, but even a healthy brute animal,—and yet even she is improving; so that the day will come—whether it be a year, or even two years distant—when she may know the blessings of health and knowledge."

Numerous are the institutions now in full and successful operation on the Continent for the cure and treatment of cretins and idiots, all having for their model the original one at Abendberg, presided over so auspiciously by Dr. Guggenbühl, whose name has become of European renown for his noble and disinterested efforts for their amelioration and restoration to human society. In the United States of America also the same good work has been going on for some time past, headed by Dr. Howe, of "Laura Bridgman" celebrity. In England, likewise, much has been done and is doing for idiots. In our review last year "on Insanity and Hospitals for the Insane," we gave a full account of the Parkhouse Idiot Asylum at Highgate, and the one at Essex Hall, Colchester, from the sixth Annual Report of the Commissioners in Lunacy, neither of which institutions has been noticed in their present Report, an omission which appears somewhat strange, but both of which, we are happy to find by the pamphlet before us, are continuing in a prosperous state. This pamphlet also informs us that in Scotland, where fatuous children are numerous, an idiot institution is about being put into operation through the individual benevolence of Lady Jane Ogilvie, who, highly to her praise is establishing an asylum for imbecile children at Baldovan, Forfarshire. When will our own country make a move in this "labour of love"? In the district hospitals for the insane alone, there are, according to this year's Parliamentary Report of Drs. White and Nugent, 177 idiots, which, we presume, must be very far from representing the real number of that class in Ireland.

10. Mr. Noble's volume, bearing the title "Elements of Psychological Medicine," has just been published, with the modest announcement of its being "an introduction to the practical study of insanity, adapted for students and junior practitioners." And from the cursory glance which the short time that has elapsed since its publication has enabled us to give it, we think it well calculated to fulfil this mission. The work does not profess to be a systematic treatise of its kind, but is composed of a series of lectures delivered by Mr. Noble at the Chatham-street School of Medicine, in Manchester, and published by request

at the close of the course. Coming thus before the profession, the author is deserving of every consideration, his chief design being to "*introduce* the topic of mental derangement in a scientific form to those who have previously given it no special consideration." Seven lectures are embraced in the volume, and no point of practical moment that we can perceive has been omitted to be brought forward in them, and the subjects generally are treated fully and clearly. We might, with advantage to our readers, give extracts from this published course of lectures, but we are obliged to content ourselves with a single one in reference to the treatment of insanity, comprised, as the author states, "in a brief formula of a few words." It is as follows:—

"Deal with the physical characteristics which may accompany insanity as you would deal with them under other circumstances, and act in correspondence with sound principles of medical practice; always remembering that, with high nervous susceptibility, depletion will be but indifferently tolerated [we would go farther than this and say not at all—Rev.], more especially when the ailment refers itself to causes essentially physical. For the relief of insanity itself, properly considered, trust almost entirely to hygienic and moral treatment, withdrawing circumstances likely to aggravate the special features of individual cases, and supplying to the mind such objects of attention and excitants to activity as may be best calculated to arouse and sustain a new and more healthful mode of operation."

11. The papers generally, in the respective numbers of the American Journal of Insanity received by us since our last Review, are of a practical and useful character as usual, and must prove highly interesting to those especially who are engaged in psychological practice. But before we proceed further in particularizing their contents, we must strongly protest against a paragraph headed "The Insane Poor of Ireland," which, to our great surprise, we read in the number for July, 1849, the first of the series now before us. We have always hitherto admired the extreme fairness, and accuracy, and friendly spirit of the conductors of this Journal, in its contents and statements, editorial and otherwise. The brief article before us, however, is very contrary to this estimate of ours, and though it does not appear to be originally chargeable to our transatlantic contemporary, yet we cannot excuse it on this account for giving so evidently prejudiced and disparaging a view of the institutions for the insane in Ireland either countenance or currency. We say this in no unfriendly spirit, and

we hope it will be received accordingly. The first palpable misstatement is, "that there is no medical man at the head of any one of these asylums, nor any resident medical officer." Now in all earnestness we ask the editor how he could believe and circulate such a false statement. The Irish asylums had from the first the most eminent medical men in their respective localities officially attached to them; they did not certainly reside in the asylums, but it is sufficient for our purpose that they were not so altogether mismanaged as to have "no medical men" at all, as the paragraph in question would lead an ordinary reader to suppose. And again, so far back as in 1843, one at least had a "resident medical officer." Secondly, it is contemptuously stated, that if they had not a resident medical officer, they had "a superabundance of boards of governors, nobility and gentry." Thirdly, "that they are not curative institutions, but mere prisons for the insane." Our simple reply to this is to examine the Parliamentary Reports, when it will be seen that the cures in the Irish asylums are considerably greater than in other countries. Fourthly, it is also stated, "that the records and reports of these establishments are said to be valueless;" may we ask, by whom? Now we assert, that the Irish Asylum Reports are second to none for valuable information. One word more, and we shall dismiss this matter. The American Journal regularly receives our own periodical; in our number for November, 1850, was an extended review of the Irish in common with other insane hospitals, founded on the best and most authentic official Reports. We presume our contemporary did not pass by unread, or at least unlooked at, that review, and if so, ought it not, in common fairness between country and country, institution and institution, have given from it a *corrective* to the totally unfounded (we might say calumnious) statement we have now called attention to. It is not, however, yet too late to make the *amende honourable.*

We have perused with much pleasure Dr. Ray's valuable paper in the foregoing number, entitled "Statistics of Insane Hospitals." All Dr. Ray's writings that we have read are characterized by solid reasoning, and an evident practical acquaintance with whatever subject in his important sphere of the profession he may treat upon.

We most fully agree with him, that the methods in practice of reporting and recording the results of treatment in hospitals for the insane require that greater uniformity and precision should be observed; and we only regret that we cannot transcribe several portions of this essay of his into our own columns.

We can but recommend it to the best attention of all superintendents.

In this number also is contained a Report of the Fourth Annual Meeting of the Association of Medical Superintendents of American Hospitals for the Insane; a body we see plainly exercising a large and most salutary influence in all that relates to the insane in the United States, and whose example and steady and persevering line of conduct would not be amiss for similar associations to follow on this side of the Atlantic.

The number for January, 1851, has another paper from the pen of Dr. Ray, "On the Legal Relations of the Insane," which, coming from so highly qualified a source, should be received with every confidence. Next, we have an article of much interest "On the Cretins of Switzerland;" and a reprint of Dr. Churchill's paper "On the Mental Disorders of Females" as originally published in our own Journal, which tells unmistakably for the high value set upon it by our American brethren.

Passing on to the number for October, 1852, we have a long paper on a curious theme by Dr. Stribling; "The employment of male attendants in the female wards of Lunatic Hospitals." This is assuredly a novel and an original idea on the part of Dr. Stribling. To us the proposition appears very much of the "go-ahead" school, and very unlikely to receive any countenance from the *sane* portion of the community. An account of "Institutions for the Insane in Prussia, Austria, and Germany," by Dr. Pliny Earle, is a very readable and instructive paper. In some notices of reports of English asylums the following observations with reference to the use of tobacco in the Rutland Asylum occur:—"We were surprised to see one item for an article which we thought the progress of the times had entirely excluded from all British asylums, as it undoubtedly has from most American institutions; we allude to a charge of £12 4*s.* 2*d.* for *tobacco* and snuff." And again:—"Tobacco forms no inconsiderable item in the expenditure of the Littlemore Asylum, the charge for this article alone being no less than £44 2*s.* 6*d*"!

We have, lastly, to call attention to "Article III." in the number for July of the present year, entitled "A Report on the Organization of Hospitals for the Insane, made by the Standing Committee of the Association of Medical Superintendents of American Institutions for the Insane at its Meeting in Baltimore, May 10, 1853." We would gladly quote the whole paper, it being a very important and ably drawn up official document, but we can only manage to make room for the

annexed extracts, with the scope of which we entirely concur:—

"The physician should be the superintendent and chief executive officer of the establishment. Besides being a well-educated physician, he should possess the mental, physical, and social qualities to fit him for the post. He should serve during good behaviour; reside on or very near the premises; and his compensation should be so liberal as to enable him to devote his whole time and energies to the welfare of the hospital. He should nominate to the Board suitable persons to act as assistant physician, steward, and matron; he should have the entire control of the medical, moral, and dietetic treatment of the patients; the unrestricted power of appointment and discharge of all persons engaged in their care; and should exercise a general supervision and direction of every department of the institution.

"The assistant physician—or assistant physicians, where more than one are required—should be graduates of medicine, of such character and qualifications as to be able to represent and to perform the ordinary duties of the physician during his absence.

"The steward, under the direction of the superintending physician, and by his order, should make all purchases for the institution; keep the accounts; make engagements with, pay, and discharge, those employed about the establishment; have a supervision of the farm, garden, and grounds; and perform such other duties as may be assigned him.

"In institutions containing more than two hundred patients, a second assistant physician, or an apothecary, should be employed; to the latter of whom other duties, in the male wards, may be conveniently assigned.

"If a chaplain be deemed desirable as a permanent officer, he should be selected by the superintendent, and, like all others engaged in the care of the patients, should be entirely under his direction.

"In every hospital for the insane, there should be one supervisor for each sex, exercising a general oversight of all the attendants and patients, and forming a medium of communication between them and the officers.

"In no institution should the number of attendants on the patients be in a lower ratio than one attendant for every ten patients; and a much larger proportion of attendants will commonly be desirable.

"The situation and circumstances of different institutions may require a considerable number of persons to be employed in various other positions; but in every hospital, at least all those that have been referred to, are deemed not only desirable, but absolutely necessary, to give all the advantages that may be hoped for from a liberal and enlightened treatment of the insane.

"All persons employed in the care of the insane should be active, vigilant, cheerful, and in good health; they should be of a kind and benevolent disposition, be educated, and in all respects trustworthy; and their compensation should be sufficiently liberal to secure the services of individuals of this description."

12. The Twentieth Annual Report, by Dr. White, of the Carlow District Hospital for the Insane Poor, for the year ending 31st March, 1853, gives the following Table, showing the number of admissions, discharges, and deaths:—

	Males.	Females.	Total.	Males.	Females	Total.
Remaining in Hospital 1st April, 1852, . .	103	96	199			
Admitted to 31st March, 1853, ...	40	23	63			
Re-admitted,—having relapsed, ...	5	6	11			
Total under treatment during the year,. . .	.	.	.	148	125	273
Discharged to 31st March, 1853, "recovered,"	10	16	26			
Do. "relieved" or "removed by their friends,"	3	4	7			
Do. "Died,"	6	4	10			
Do. "Escaped from the Hospital,"	1	0	1			
Do. "Transferred to Kilkenny District Hospital,"	28	26	54			
Total of Discharges during the Year, . . .	.	.	.	48	50	98
Remaining in Hospital 31st March, 1853, .	.	.	.	100	75	175

Dr. White complains much of several cases having been removed by their relatives prematurely, three of whom had subsequently to be brought back to the hospital. The simple remedy for an evil of this kind would be to have it understood, on the admission of a patient, that he would not be discharged until the medical superintendent considered it safe to do so. Let this plan be properly followed up, and the grievance referred to will soon cease. Some additional land was obtained during the year, which Dr. White states was productive of the best results, by affording a great increase of useful occupation for the inmates. After some special and awkwardly introduced observations respecting "the system of appointing chaplains to the hospital," Dr. White refers to the item of "tobacco and snuff" consumed during the year, at a charge of £15 1*s.* 8*d.*, defending its use on professional grounds. The arguments, however, had recourse to are, in our view of the case, quite beside the question, and opposed to the rule of practice even in the American hospitals, as will be seen from the extracts we have just given.

13. The usual *balance-sheet* form of Annual Report of the Maryborough District Lunatic Asylum affords the following statistical and other information:—

"RETURN *of Patients for one Year, to 31st March*, 1853.

	King's County.	Queen's County.	Westmeath County.	Longford County.	Total.
Admitted from 1st April, 1852, to 31st Mar., 1853,	15	19	10	2	46
Re-admitted, having relapsed, same period, . .	3	4	1	1	9
Discharged, cured or relieved, same time, . . .	15	11	4	2	32
Do. unrelieved, taken out by their friends, ...	0	0	0	0	0
Died, in one year, to March 31st, 1853, ...	8	10	6	3	27
Patients of each sex remaining in Asylum on 31st March, 1853, ...	M. F. 27 24	M. F. 30 22	M. F. 25 33	M. F. 12 11	184
Of those remaining are criminal or dangerous lunatics, ...	7 6	2 1	12 10	5 3	46
Population of each county, by Census of 1851, . .	112,877	109,747	107,510	83,198	413,330

"DIETARY.

"*Breakfast for every Day.*—One quart of stirabout, made of 8 oz. of oatmeal; one-third quart of new milk.

"*Dinner for four Days.*—12 oz. of bread for males; 10. oz. for females; one pint of new milk.

"*Dinner for three Days.*—One quart of soup, made of half pound of beef and bone, or beef heads; 12 oz. of bread for males; 10 oz. for females.

"*Supper for every Day.*—6 oz. white bread; one-third quart of new milk.

"Buttermilk has been entirely superseded as an article of diet for patients, and new milk substituted in its place since October last, at the suggestion of Dr. White, one of the Inspectors-General.

"EMPLOYMENT.

"The male patients have ample and almost constant employment in the tillage of the land. Their labour last year caused a saving to the public of £138 10*s*. 10*d*."

With reference to the health of the inmates during the year, Dr. Burton, the Resident Physician, reports as follows:—

"In conjunction with Dr. Jacob, I have to remark that a great degree of ill-health has marked the past year, especially the latter

portion of it, both amongst the patients as well as the servants: attacks marked by accessions of fever, derangement of the mucous membrane, catarrh, and finally dysentery, have made sharp inroads upon the former inmates, proving fatal in many instances where previous debility, advanced age, and a highly scrofulous tendency accompanied them: these cases have respectively been brought under your notice by Dr. Jacob at each monthly meeting."

14. The Kilkenny District Lunatic Asylum is one of the newly created institutions for the insane poor of this country, and was opened for the admission of patients from the county and city of Kilkenny on the 1st of September, 1852, under the superintendence of Dr. Joseph Lalor, a copy of whose first Report to the 31st March last is now before us. According to it, there had been admitted during the above-named period 136 patients, of whom 8 were discharged recovered, 4 died, and 124 remained in the institution. On looking over the Table of the "supposed causes of mental disease in the cases admitted" we find no fewer than five varieties of the "religious stamp"[a].

1. Overwrought religious feeling, ...	1	male.
2. Religious zeal, ...	1	female.
3. Excessive piety(!)	1	do.
4. Religious despondency, ...	1	do.
5. Religious scruples, ...	1	do.

On this subject the following observations of Dr. Ray on the "assigned causes" of insanity, in his excellently drawn-up paper, entitled, "Statistics of Insanity," which we have referred to in our notice of the American Journal, we think sensible and much to the purpose:—

"There is much reason to believe that many of the emotions and incidents that are set down as causes of insanity, such as "fear of poverty," "religious doubts," "anxiety," &c., would often be more justly regarded as its effects. They are the first symptoms that arrest the attention, and by means of that common disposition to confound the *post hoc* with the *propter hoc*, they are placed in relation of cause to the subsequent of aberrations."

Dr. Lalor's own remarks on this point are pretty similar:— "In some instances, at least, the supposed causes of insanity are rather effects than causes."

The Table detailing "the previous occupation" of the inmates, gives the largest number as "agricultural labourers,"

[a] "We demur to this peculiar species of insanity, preferring greatly the term ir-*religious* insanity."—*American Journal of Insanity*, vol. vii., No. 3.

who amount to 29,—27 males and 2 females. This would seem to be a corroboration of the opinion of Dr. Smith, of the Ohio Lunatic Asylum, who, being asked the question which class of society furnished the majority of lunatics—replied, "the farmers; they work too hard and have no holiday. Rest, here in the asylum, restores them almost always"[a].

We congratulate Dr. Lalor on the care and ability with which his Report is drawn up, and on the amount of useful information he has condensed into so small a space. It affords a proof that the zeal and talents which he displayed while a practising physician, as evidenced by the several valuable communications from his pen which have from time to time appeared in our pages, are as anxiously devoted to the advancement of the special branch of medicine to which he has now attached himself.

15. The Annual Report of the Suffolk Lunatic Asylum, for the year 1852, is compiled in Dr. Kirkman's usual able and sensible manner. His remarks on various important subjects connected with the years preceding are just what we would expect from a superintendent of his great experience and observation. We have only room for the following short extract touching treatment generally:—

"Reports which relate simply to matters of fact exclude the writer from the more enchanting ground of psychological research, and tie him down to matters of detail; and the details of facts are sufficient to make all of us materialists enough to allow that the brain is the organ through which the mind acts; and that, in the treatment of insanity, whatever the cause may be, the most comprehensive pharmacopœia can produce no remedy equal to the single article 'rest.'"

The year's results are thus given:—

	Males.	Females.	Total.
Under treatment during the year, . .	101	143	244
Discharged cured, ...	22	28	50
Do. relieved, ...	2	8	10
Died, ...	17	10	27
Remaining 31st December, 1852, . .	111	144	255

16. From the Fifth Report of the Somerset County Asylum, for the year 1852, by Dr. Boyd, many useful hints may be

[a] American Journal of Insanity, vol. x. No. 1, p. 91.

gathered,—Dr. Boyd being evidently a practical man, and well up to the important and absorbing functions he, as its chief, has to perform.

The following remarks respecting "flooring" we think deserving of much attention. We do not recollect to have read or seen before the plan of *oiling* floors here recommended:—

"In all the single sleeping rooms, dormitories, and throughout the upper story, the floors are of wood. When oiled, before the wood has become stained by use, it looks well, and is easily kept clean, and seldom requires washing; two coats of oil will last for two years. When accidental spots occur they can be oiled again; it only requires to be occasionally washed with cold water, and no soap or soda should be used. A medical friend of great experience has written to me that he considers the system of *dry rubbing* floors is a very good one, and much less liable to prove injurious to health than the too frequent washing formerly in use in public institutions, and for which he believes dry rubbing is now generally substituted in military and naval hospitals. Much labour is saved in washing by these oiled floors, and the patients are less subject to the inconvenience and injury sometimes caused by damp floors, especially in winter, when they are slow in drying, and the patients are kept mostly in the house."

Respecting the number of attendants Dr. Boyd states, that the average is one for every fifteen males, and one for every eighteen females. As to restraint, he states:—

"In four instances patients were found loosening and removing their bandages, to prevent which one wrist was fastened by a handkerchief to the side for some hours; and in three of these cases no further attempts were made."

The tincture of sumbul in epilepsy appeared to mitigate the severity of the fits. The heads of those patients who are subject to fits at night are raised. Eight epileptics died during the year. In the post-mortem examinations of fatal cases of general paralysis the spinal cord was found diseased, as the result of inflammation, in which the ventricles and membranes, at the base of the brain, were generally implicated. Mr. Gulliver, the eminent surgeon, had subjected some portions of the morbid parts to microscopic examination, and found that the "exudation corpuscles" were most frequently present in the spinal cord, and were similar to those described by Dr. Bennett, in his paper on inflammation of the nervous centres. *Liquor hydrargyri bichloridi* was given with the view of checking inflammation. The number under treatment during the year was 468; of which 128 were new cases. The recoveries

amounted to 47,—24 males, and 23 females. 17 were discharged relieved, and 4 not improved. The deaths were more numerous than usual being 58,—35 males and 23 females; and nearly one-half occurred from among the new admissions; the average mortality was 12½ per cent. for the year. The statistical tables are very numerous, and the obituary very full and complete as usual. The total expenditure, during the year, amounted to £7084 12*s.* 4*d.* The expense incurred for *tobacco alone* was £57 0*s.* 11*d.*

17. Dr. Thurnam's Second Annual Repart of the Wilts County Asylum, for the year 1852, shows, that the total number of patients under treatment was 282; the males being 128, and the females 154. Those discharged recovered were 35,—7 males and 28 females; 1, a male, was discharged relieved; and 2, a male and a female, unrelieved. The deaths were 25,—16 males and 9 females. The population during the year varied from 204 to 265, and the number left under treatment, at the close of the year, was 219,—103 males and 116 females. Some patients, above the class of paupers, had been admitted at a weekly charge of 14*s.*; but the practice had to be discontinued in consequence of the asylum being liable to the full amount of rates and taxes by receiving such. On the subject of diet, Dr. Thurnam, an excellent authority, makes the following pertinent observations:—

"There can be no doubt that much of the insanity which exists among the poor, particularly in agricultural districts, is to be traced principally to their scanty supply of the necessaries of life, and the low state of vitality thence resulting. In the case of many of the sick, it is found necessary to modify the ordinary diet, and allow such extras as a little wine, ale or porter, milk or eggs; which often prove the best restoratives."

The standing dietary was increased during the year, meat dinners being given four days in the week, with an allowance of malt.

The total expenditure of this asylum during the year was £4449 18*s.* 2*d.*; and, as usual, tobacco and snuff make their appearance, to the amount of £26 18*s.* 3*d.*, which we cannot but regret to see in so well and scientifically conducted an asylum as Dr. Thurnam's.

18. The Annual Report of the Royal Edinburgh Asylum, for the year 1852, drawn up by Dr. Skae, its able Physician-superintendent, contains a large amount of very interesting and

instructive matter, and a number of statistical tables, which display great care and much pains in their compilation. Indeed, the Tables given in the Reports of institutions generally for the treatment of the insane in these countries, are a strong and speaking evidence in themselves alone of the methodical and extremely accurate manner in which every point of detail is attended to and carried out in those admirably worked establishments, and redound highly to the credit and zeal of their respective resident physicians, whose duties are of so onerous and responsible a character. The patients treated during the year by Dr. Skae we find amounted to the large number of 763, of whom 247 were new admissions. They are thus accounted for, viz., discharged cured, 101; do. uncured, 55; and removed by death, 64; leaving in the asylum, at the close of the year, 543,—275 being males, and 268 females. Dr. Skae has some excellent and lengthened remarks respecting provision being made for incurables in workhouses, repudiating the idea of—

"Condemning a lunatic, capable of enjoyment, able and willing to work, but rendered incapable of taking care of himself by *disease*, to such a residence;" and very justly stating that thus acting "would be adding man's punishment to God's visitation, and would be repugnant to the common philanthropy of the age in which we live."

Our own view on this important subject is the same now as we gave expression to on a former occasion, when something of a similar question was mooted by the authorities in Ireland, at least when it was proposed to erect establishments to draft all incurables to, in other words, condemning them to a wretched prison-house, supported at the lowest possible cost, so as to do little more than keep soul and body together. To act in such a manner as this towards such unfortunates would indeed be a daring and cruel act. We, however, quite agree with Dr. Skae in the propriety of harmless imbeciles, incapable of enjoyment, being placed apart from the merely chronic insane patients. We would like to see institutions set apart for the exclusive care of idiotic, epileptic, paralytic, and hopelessly demented and imbecile cases which are now retained in our ordinary hospitals for the insane, but from which they should be entirely removed to a distinct institution built and planned for themselves alone; and we hope that the day is not far distant when we shall see this desideratum fully accomplished.

19. The Crichton Royal Asylum, at Dumfries, continues to

uphold its deservedly eminent position among the British establishments for the insane under the energetic and painstaking superintendence of its highly informed chief physician, Dr. Browne, whose Report for 1852 is a *vade mecum* in itself in all that regards the care and management in theory and practice of the insane. To do anything like justice to the Report now before us, even in giving the most condensed analysis of its enlarged contents, would require several pages of our Journal; we must, therefore, be satisfied on the present occasion with a mere statement of the results of the year, and on this head we have to observe that 341 patients were in charge in 1852; that of this aggregate number 50 were discharged as recoved, 13 improved or during treatment, and that 25 died. Dysentery had the largest number of victims, 7 having sunk under it; apoplexy comes next, it being the cause of 5 deaths; 2 died of phthisis, 2 of general paralysis, 2 of bronchitis, 1 each of epilepsy, anthrax, erysipelas, hydrothorax, disease of liver, paralysis, and pleuropneumonia

The greatest variety is afforded to the inmates in the way of amusements. Social meetings, too, are regularly held, and a large and brilliantly lighted room is devoted to billiards, reading, conversation, or quiet recreation in the presence of an officer. There is also a theatre in which farces are acted by the inmates, who are liberally and admirably provided for in this institution.

20. The Tenth Annual Report of the State Lunatic Asylum of the State of New York, for the year ended 30th November, 1852, is from the pen of Dr. Benedict, whose valuable Reports we had under notice on a former occasion. The present one is a very satisfactory document, and arranged with much judgment and clearness. It states that, at the commencement of the year the number of—

	Males.	Females.	Total.
Patients in the house was	220	215	435
Received during the year, ...	200	190	390
Total under treatment, ...	420	405	825
Discharged recovered, ...	92	64	156
Do. much improved, ...	7	4	11
Do. improved, ...	21	21	42
Do. unimproved, ...	63	89	152
Died, ...	22	17	39

Dr. Benedict strongly counsels practitioners in ordinary

against the practice of taking blood from insane patients, some of the cases received having been greatly depleted before admission. Active insanity, he properly observes, is treated by psychological physicians on principles the very opposite of depletion; that not one ounce of blood had been drawn from the 825 patients under treatment during the year; and stimulation had been resorted to in many cases with great freedom and the best results. Amongst the probable causes of derangement in the 390 admissions of the year, the largest number, 46,—41 males, 5 females, is set down to "intemperance." The next is masturbation, 40,—36 males, 4 females. Then "spiritual rappings and popular errors, 29,—14 males, 15 females. Dr. Benedict urges upon the state the necessity of "Criminal Lunatics being placed in a secure establishment apart from ordinary patients, and also a similar provision to be made for drunkards." He is, moreover, of opinion that separate hospitals for the insane should be erected for male and female patients, which he states would be highly desirable.

Some Observations on Fish in Relation to Diet. By John Davy, M. D., F. R. SS. Lond. and Edin., Inspector-General of Army Hospitals, &c. Reprinted from the Transactions of the Royal Society of Edinburgh, Vol. XX., Part IV. Edinburgh: Printed for the Society, by Neill and Co. 1853. Pamphlet, 4to, pp. 9.

Dr. Davy's paper embraces the consideration of three distinct questions, viz.:—"First, what are the nutritive qualities of fish, compared with other kinds of animal food? Second, do different species of fish differ materially in degree in nutritive power? Third, has a fish diet any peculiar or special properties?" The author professes to attempt at present little more than an opening of the inquiry; but as the subject is important, and deserving of close investigation, we trust he may be induced to persevere in his researches.

In entering on the consideration of the first question, viz., the nutritive power of fish, Dr. Davy observes, that "the proposition probably will be admitted, that the nutritive power of all the ordinary articles of animal food, at least of those composed principally of muscular fibre, or of muscle and fat to whatever class belonging, is approximately denoted by their several specific gravities, and by the amount of solid matter which each contains, as determined by thorough drying, or the expulsion of the aqueous part, at a temperature such as that of

boiling water, not sufficiently high to effect any well-marked chemical change."

Now, this proposition does not, we think, go far enough. There is too much difference *in composition* between the fleshy parts of fish and land animals to admit of their relative nutritive powers being determined merely by ascertaining the quantity of solid matter which each contains. That it must be as necessary to discover the quality of these solid matters as their amount will at once appear, by comparing the following analyses by Schlossberger of the flesh of various animals, which we copy from the Sydenham Society's edition of Simon's Chemistry[a].

	Ox.	Swine.	Carp.	Trout.
Water,	77·50	78·3	80·1	80·5
Muscular fibre and vessels,	17·50	16·8	12·0	11·1
Albumen and hemato-globulin,	2·20	2·4	5·2	4·4
Alcohol-extract with salts,	1·50	1·7	1·0	1·6
Water-extract with salts,	1·30	0·8	1·7	0·2
Phosphate of lime with albumen,	Traces.	Traces.	. .	2·2

In fact, to determine this question so far even as it can be done by chemical investigation, a series of accurate analyses, both proximate and ultimate, would be required. We are not aware that any complete ultimate analysis of the edible portions of fish is on record; if it be the case that none such exists, a field of interesting research lies open to the chemist. That the determination of the specific gravity and of the amount of solid residuum is not sufficient to decide the question is apparent from Dr. Davy's Tables, from which it will be seen that the oily fishes, the sea-trout, salmon, mackerel, and eel, all yield a larger amount of solid matter than beef and mutton; yet few, we think, will be found to dispute the superior nutrient powers of the latter articles of food; whether, as Dr. Cullen observes, they argue, *à priori*, "from the similarity of substance and economy in quadrupeds, to that of man;" or secondly and chiefly, from the results of personal experience. The mackerel, again, which affords a much larger residuum than the salmon, is specifically much lighter, in consequence, as Dr. Davy states, of the large amount of oil contained in it.

But it is to the author's remarks, in connexion with the third question proposed in the commencement of his paper,

[a] Vol. ii. pp. 423, 424.

that we chiefly wish to direct the attention of our readers, containing, as they do, a suggestion well worthy of the consideration of the practical physician.

Fish, and especially shell-fish, as is well known, has often been recommended as an article of diet well suited to phthisical patients, chiefly on account of its mildly nutritious and unstimulating properties; and some have even attributed to it directly curative powers, "oysters, it has been said, have performed cures of consumption"[a], yet we are not aware that any one has anticipated Dr. Davy in a suggestion of its use based upon philosophical and scientific views. From the information he has been able to collect, he is disposed to think that fish, as a diet, is more conducive to health than the flesh either of birds or of such of the mammalia as are used for food, and that it especially tends to the prevention of scrofulous and tubercular diseases; to which diseases he believes fishermen and their families to be less subject than any other class without exception. In support of this opinion he quotes some very striking facts, but it must be borne in mind that other causes may combine to produce the exemption under consideration, such as the fact of the class alluded to living almost constantly in the open air, and perpetually inhaling a marine atmosphere.

Believing the exemption to be mainly owing to diet, the author was led to seek in "the composition of fish some element not common to other kinds of food, whether animal or vegetable." This element he believes to be iodine.

In every instance in which Dr. Davy sought for this substance in sea fish, he "found distinct traces of it; and also, though not so strongly marked, in the migratory fish; but not in fresh-water fish." His trials have hitherto been limited to the red gurnet, mackerel, haddock, common cod, whiting, sole, ling, herring, pilchard, salmon, sea-trout, smelt, and trout. In the instance of the fresh run salmon, sea-trout, and smelt, a slight trace of iodine was detected; in the spent salmon descending to the sea, only a just perceptible trace of it was observable; and not a trace of it either in the parr or the trout." In the common shrimp he detected it in an unmistakable manner; and also in the lobster, the crab, the common cockle, mussel, and oyster.

The author points out the analogy in this respect between sea-fish and cod-liver oil, which also contains iodine, and con-

[a] Medical Inquiries and Observations, by Benjamin Rush, M. D., vol. ii. p. 129. Philadelphia: 1793.

siders that the former may be beneficial as a diet in the cases in which the latter has been found so useful as a medicine: he alludes to the facility with which fish may be preserved, even without salt, by thorough drying. "I lay stress," he says, "on thorough drying, as that seems essential: for preservation, I believe even hygroscopic water should be excluded."

"The inference regarding the salutary effects of fish depending on the presence of iodine, in the prevention of tubercular disease, might be extended to some other diseases, especially to that formidable malady—goître, the mitigation or cure of which has, in so many instances, been effected by iodine; and which, so far as I am aware, is entirely unknown amongst the inhabitants of sea-ports and sea-coasts, who, from their situation, cannot fail to make more or less use of fish."

We have quoted sufficient to show the importance of Dr. Davy's paper. The decision of the questions discussed in it must, in their medical bearings, be left to the practical physician. Chemical science, which received so vast an impulse from the labours of his illustrious brother, is already indebted to Dr. Davy for many valuable contributions, and we trust that he is about to add to the number of her obligations to his family by fully investigating the chemical relations of the subject he has now taken in hand.

Lectures on Surgical Pathology, delivered at the Royal College of Surgeons of England. By James Paget, F. R. S., lately Professor of Anatomy and Surgery to the College; Assistant-Surgeon and Lecturer on Physiology at St. Bartholomew's Hospital. London: Longmans, 1853. 2 vols. 8vo, pp. 499 and 637.

The Museum of John Hunter has certainly been one of the most fortunate, as it is one of the most splendid, monuments of human industry and love of science. Founded originally by the stupendous activity of one man, and brought to a surprising degree of completeness in some departments, it illustrated, in the most striking manner, at once the inexhaustible riches of nature, and the power of the human mind to develop analytically the laws presiding over a large portion of creation. It differed, when first placed by Government under the care of the College of Surgeons, from almost all other public collections at the time. It was no chance-medley heap of curiosities; its catalogue was not a list of rare and singular objects, huddled together with-

out plan, and arresting attention only by their individual interest. Rich and rare specimens were indeed there; but every visitor of intelligence felt that the *whole* had a kind of value that belonged not to any *part*. It was an illustration of the laws of organization more profound, and yet more practical, than had ever yet been presented to the world: it was, at the same time, the mirror of a life devoted to the investigation of these laws; the seal and the monument of a mission self-imposed and nobly fulfilled, amid no small amount of self-sacrifice and discouragement. To the highly educated man of science it was the summary of an age of progress; to the student (and who is not a student in these matters?) it was, and we trust will long remain, still more valuable as an example of practical industry and honest labour bestowed in a cause where these qualifications rarely fail of success. There are few who have not felt the want of such "a spur to prick the sides of their intent;" and all who *have* so felt will view with more than merely scientific interest the labours of Hunter.

It was of no small importance to the public that the custodiers of this Museum should be men who would appreciate it in this double relation, and who, in extending and adapting the collection to the wants of a more modern epoch, by the admission of new contributions, would not lightly allow its individual character to be lost. It is impossible to speak too highly of the manner in which this delicate task has been accomplished by the College. Not only has the utmost liberality been exercised in pecuniary matters, but the whole of the patronage, which, in connexion with the Museum, devolved upon the Council, seems, so far as we can judge by the results, to have been exercised with singular discretion, and with a due regard to the public advantage. The Curatorship of this great work seems to have been regarded as a most sacred trust, and the "natural piety" towards its founder, which once effervesced in the somewhat extravagant expression, "that great saint of surgery," takes a more solid and satisfactory form in the excellent catalogues (as well of the original collection as of the additions which have taken place by purchase and private donations); and in the lectures which, under the auspices of the College, have been for some time past annually delivered in their hall on the subjects of comparative anatomy, histology, and surgical pathology.

It is with the last of these subjects that we have now to do: "surgical pathology" being the general term chosen by Mr. Paget to denote the collected materials of several courses of lectures delivered before the College in the successive summers

of 1847 to 1852, printed originally in the "Medical Gazette," and now reproduced in the two volumes before us, with large additions, and numerous wood-cut illustrations. The subject is a vast one, demanding for its adequate treatment the highest powers of generalization, as well as the most intimate knowledge of detail. Hypercriticism might take exception to the title, inasmuch as "pathology," in the sense in which the word is employed by Mr. Paget, is a science having to do nothing with either surgery or medicine, save to draw its illustrations from them, just as chemistry may be taught from a consideration chiefly of the metals or the earths, the organic or the inorganic bodies. "Surgical pathology" is a term as ungrateful to our logical sense as "metallic" or "earthy chemistry" would be; although we admit that it finds, in the habitual use of the terms, "organic," and "inorganic," as applied to the latter science, some justification. But not to dwell on matters of small importance, we may explain in a few words the object of Mr. Paget in these lectures, as indicated in the Preface. They were intended to expound, to a body of surgical practitioners, the general principles of pathology as applicable to their art, and as illustrated by the Museum of the College. "The Museum limited," says the author, "while it indicated the subjects of the lectures;" and even with this understanding it will be found that a further selection and limitation of subjects has been found necessary, the lectures being, in fact, confined to the discussion of the most general laws of *organic* or *structural disease*, apart from the consideration of chemical, mechanical, or merely functional changes, many of which would be most properly included under the term "surgical pathology," if such a term is to be recognised in science.

The reader will, therefore, bear in mind, that Mr. Paget's work by no means professes to be a complete system of pathology, even in its surgical relations. It is not a text-book, or a cyclopædia, but something infinitely more important to the cause of science:—the contribution of an original mind to the progress of inquiry, representing the *net result* of many years of profound research, careful study, large practical experience, and widely extended reading, in a department of science which very few have been found capable of treating in such a way as materially to advance the knowledge of its philosophical principles. Mr. Paget would, we are certain, be the last to claim for his work so ambitious a position as is implied in comparing it with John Hunter's "Treatise on the Blood, Inflammation, and Gunshot Wounds:" yet the comparison is one which rises at once to our mind as we contemplate the scope of the two

works, and to our view it is fully justified by a consideration of them in detail. We shall the more readily be excused for a parallel which may seem invidious (but to which we think it of real importance to direct attention), if we observe that the first volume of Mr. Paget's "Lectures" is devoted to an examination of the very same subjects as engaged Hunter's attention in Parts I. and II. of his Treatise; that the same illustrations come under review in both; and that much attention is everywhere devoted by the modern writer to Hunter's opinions, in the spirit not of destroying, but of fulfilling, according to the best lights of modern science. These circumstances lead us to the appreciation of Mr. Paget's scientific *point of view* as compared with that of his great predecessor; and as we cannot, with justice either to the author or to ourselves, attempt a full, critical analysis of a work at once so broad and so deep in its survey as the one before us, we propose to make some observations, desultory enough it may be, on the progress which its pages indicate in pathological inquiries, and on the general direction of those inquiries in the present day. We must state, at the outset, that, in our opinion, no work has issued from the press for many years, so well entitled to consideration as an index to the highest philosophy of the subjects with which it is occupied, or so comprehensive and exact in its appreciation of the results of modern science. The clearness and beauty of expression which distinguish it make the work sure of many readers; and from its carefully considered argument and judicial tone we feel satisfied, for the most part, to leave it in their hands, as a guide even on doubtful points, without any comment of ours.

In assuming, as the starting-point of his prelections, the pathology of the great functions of nutrition and growth, Mr. Paget has struck the key-note of modern physiological science, as applied to the study of disease. The morphological changes in the minute elements of the tissues—the importance of which it has been mainly the province of modern inquiry to discover—have (as might be expected) guided him throughout, not only in his descriptions, but in his fundamental ideas and doctrines. We are thus made to feel at every page, almost in every sentence, the debt which we owe to the progress of histological inquiry, and this in a manner far more satisfactory and convincing than is the case in many works professedly and ostentatiously devoted to the modernizing of our ideas: for, be it observed, as a proof of the good sense and thoroughly *English* spirit (we on this side of the channel may use the word without invidiousness) which pervades the work,

that, though it deals throughout with ideas, and even phrases, derived essentially from the most modern investigations, there are very few books on such subjects, from the time of Hunter downwards, where a man of ordinary professional information will find himself more at home. So skilfully are the old and the new interwoven,—so completely are they assimilated in the author's mind,—that not once in the perusal of the work have we been made to experience that painful and too familiar confusion of ideas to which we feel ourselves often condemned in the course of our critical investigations into literature of this class. The author has the somewhat rare merit of writing, with a single view to the information of his readers, in pure and intelligible language, and has not thought it necessary to ransack the Greek lexicon, or any other source of new and complicated vocables, for the purpose of superseding old favourites, or otherwise adding meretricious lustre to his discourse. It is with no ordinary feeling of satisfaction that we find, after so many formidable conspiracies to remove them from the vocabulary, our old acquaintances—*inflammation*, *lymph*, *adhesion*, *granulation*, *malignant disease*—put forward as the loadstones of our path; while the whole of the author's doctrine as regards these subjects appears to have been simplified, rather than rendered complex, by the vast mass of modern materials which he has had to include in it. Nor do we less feel indebted to Mr. Paget for relieving us in his pages from the company of those extremely *heterologous* and *caco-plastic epigeneses*, which, under the influence of a wordy *dyscrasia*, have been eliminated from the *blastema* of modern science by the misapplied energy of some of our contemporary writers.

To return to the subject of the minute anatomy of the textures, as the foundation whereon the modern pathology of structure is reared, the reader of John Hunter's work will observe, in comparing it with the one before us, a great difference in the fundamental ideas throughout. To Hunter the blood and blood-vessels were the source of all vital power, and the tissues, natural and morbid, were to a great extent the result of "vascular action." Increased determination of blood produced disease, because the vessels, which by their "active dilatation" contributed to this result, demonstrated their activity in another form, by the "effusion of coagulable lymph." The coagulation of the lymph was the result of its own inherent life, derived from the blood, which coagulates when drawn from a vein, as muscles contract after death, both processes being a last effort of vitality. Lymph, as being a part of the blood, participated in its life. The muscles, glands, and all the solid vascular tex-

tures, drew their life and functional activity from the same fountain; for to Hunter, as to the ancient Orientals, *the blood was the life;* and it took in his physiology almost the place of the mythical *Archaeus* of Paracelsus, or the somewhat more philosophical *anima* of Stahl, or the "vital principle" of Alison and other modern writers. This life or vital principle being bound up with the blood in the Hunterian pathology, the investigation of that fluid was of course the starting-point of all his inquiries. The proof that this substance, "unstable as water," carried hither and thither by external forces, changing in its composition from hour to hour, was as much alive as muscle or brain, was conclusively deduced from the circumstances attending coagulation, while the much stronger evidence derived from the examination of the red globules was by Hunter disregarded, inasmuch as he considered them a non-essential part of the blood, not to be found throughout the animal kingdom. In the same way he disregarded altogether the vital properties inherent in the minuter and extra-vascular elements of the solids; and for a long time after the Hunterian epoch it was considered impossible to ascribe any active vitality to a tissue not pervaded in every part by capillary blood-vessels, which were supposed in some mysterious way to carry about the seeds of life and organization, and deposit or withdraw them along with the nutritive fluid. Had it not been for the large powers ascribed to the vessels, John Hunter's would have been the most completely *humoral* system of pathology ever given to the world; as it was, its searching investigation into the functions of the blood and blood-vessels, even though one-sided, was necessary as a counterpoise to the prevailing philosophy, which, through the labours of Hoffmann, Whytt, and Cullen, had been too exclusively bent on showing the participation of the solids, through the nervous system, in all vital phenomena.

At the present day both fluids and solids have undergone a minuter investigation, and the result has been a conviction of the imperfection of all previous theories. We now see the necessity of not confining the sphere of vital activity within the narrow limits of fluid or solid, vascular or non-vascular tissue. With microscopic eyes we are enabled to trace the actual operations of nutrition and growth beyond the immediate range of either nervous or "vascular action." We are not under the necessity of denying to cartilage a participation in the morbid phenomena of other textures, because its elements are a little further removed from contact with the blood or with the absorbent vessels, than in the case of skin or mucous membrane. We do not now look for vessels as the proofs

of organization in the products of disease, nor are we surprised to find in the "red globules" of Hewson, so much despised by Hunter, a structure beautifully organized and wonderfully endowed, though in communication with the rest of the economy through the intervention of the fluids alone. These altered views, which are the result of the researches of many observers, are fully represented, so far as pathology is concerned, in Mr. Paget's work; and in the instructive chapters on nutrition and growth, as well as in all other parts of these volumes, the reader will find these modern researches represented, not indeed as opposing, but as flowing out of and completing the older hypotheses.

In the first two lectures which relate to nutrition in its pathological relations, Mr. Paget discusses very fully, and with great abundance of happy illustrations, the laws of healthy nutrition, and the mutual re-action of all the tissues of the economy upon one another, and especially on the blood; in which, however, in conformity with the principles of Hunter and the most accurate modern physiologists, Mr. Paget recognises, not merely a nutritive fluid, or a reservoir of the system, but a living mass, having the power, within certain limits, of preserving unchanged its own constitution by forces inherent in itself. This power of independent self-preservation Mr. Paget likewise claims for the tissues, considering them not as mere deposits from the blood, but as a series of living organisms, every portion of which is placed in accurate relation with some portion of the nutritive fluid, so that neither can the blood be maintained in health while the tissues are vitiated, nor can the tissues be properly nourished if the blood is not supplied to each separate point of the organism containing the material required for its support. The extremely striking results of this mutual adaptation of the blood and tissues is pointed out in some of the specific diseases, in which there is every reason to believe that some morbid material is superadded to the blood, and in which that material is sometimes found to give rise to disease of the tissues upon a precisely symmetrical plan, thereby showing that the exactly similarly affected, though distant, portions of skin or of bone must have resembled each other (not merely in position, but in some mysterious relation to the mass of the poisoned blood), more closely than the intervening unaffected parts. We have not space to do more than to refer to the beautiful laws shortly noticed by Treviranus, and developed at greater length in these Lectures, wherein it is shown that the glands and excretory organs are not the only parts of the system where the depuration of the blood is accomplished,

but that every organ and tissue must be considered, in virtue of the material which it withdraws from and returns to the general circulation, an agent in the general work of nutrition, inasmuch as it performs its part in the elaboration, depuration, and deterioration of the fluid by which all other parts are fed. The applications of this law are very strikingly illustrated by the dependence of the growth of the hair, or of other cuticular appendages in male animals, upon the development of the sexual organs and their functions; and a pathological illustration is found in those cases of hypertrophy which spring from atrophy of a symmetrical organ, and in which it is evident that the accumulation in the blood of the material destined for the atrophied organ becomes the source of increased vigour and size to the other.

We must pass over the observations on growth, together with most of those on hypertrophy and atrophy, merely remarking that under the latter term Mr. Paget includes all the fatty, calcareous, pigmentary, and other degenerations of tissue, —an extension of the signification of this term to which we should be disposed on technical grounds to object, as leading to confusion; although, in a strictly scientific point of view, there is something to be said for Mr. Paget's method.

The lectures on repair and reproduction of tissues are among the most original in the work, and are full of suggestive doctrines and novel statements of fact which demand to be carefully weighed, and are in general stated by the author in such a way as, where there is any doubt, to place both sides of the argument most impartially before the reader. The power of repair in the higher animals resembles that of reproduction in the lower, being most highly developed where the specific life and individual character of the part or individual is lowest. Thus fibrous tissue, epithelium, capillary vessels, have an almost endless power of reproduction, resembling in this respect the polyps and monads of the lowest tribes of animals; while skin, muscle, nerve, resemble the higher animals in being more complex, with more distinctive organization, and, therefore, less capable of reproductive repetition. An apparent exception to this law is the reproduction of bone; but Mr. Paget by no means admits this as a real exception, considering, as he does, bone as a tissue of low organization, although peculiar in being the seat of a process of calcification. We must say that the arguments on this point are scarcely satisfactory to us. We can scarcely conceive of bone as being of lower organization than the cartilage from which it is produced; yet how easy of reproduction the one, and how difficult the other!

The description of the reparative process, as it occurs in various tissues, is remarkably interesting. In regard to the mode of union of fractured bones it is to be observed, that Mr. Paget denies the occurrence in man (at least in ordinary circumstances), of what has been usually termed provisional callus. Even in animals (in which Dupuytren first described this mode of union), it is not constant, as favourable specimens are only to be obtained in young subjects, and not always even in them. In man Mr. Paget has never seen provisional callus formed, except in the ribs, and in one or two other bones where the process of union was violently disturbed. Usually the medium of union is thrown out only between the fractured surfaces, and it is occupied at once by a permanent ossification. Another very prevalent idea is disputed by Mr. Paget, viz., the generally cartilaginous nature of callus. He finds that the reparative material may in passing into bone assume various types of structure: the most usual in man being nucleated or fibrous tissue, and sometimes a kind of fibro-cartilage. A true cartilaginous callus is, however, met with in some animals, and may probably also be found in favourable specimens of fracture in young children.

The consideration of the healing process in injury leads by an easy transition to the Lectures on the simplest type of disease—inflammation, a word which Mr. Paget does not attempt rigidly to define, thinking that "the attempts at precise definitions that have been made hitherto seem to have led to confusion, or to false and narrow views of truth." With this opinion, as also with the following sentences, we very fully concur:—

"But the very difficulty of exactly defining the process of inflammation may be our guide to the most hopeful method of investigating it. When we see such gradual transitions from the normal process of nutrition to the disease of inflammation that we cannot draw a definition between them, we may be sure that the main laws of physiology are the laws alike of disease and of the healthy process; that the same forces are engaged in both; and that, though interfered with by the conditions of the disease, they are not supplanted or annulled."

In the observation of the phenomena of inflammation in the minute vessels Mr. Paget has employed the wing of the bat, which, as exemplifying the process as it occurs in a warm-blooded animal, has some advantages over the frog's web. The results are, however, very similar, except that the stagnation of the blood is neither so complete nor so lasting as in the rep-

tile. The *rationale* of the stagnation is considered by Mr. Paget to be still obscure, notwithstanding the multiplied investigations of recent observers. Nor does he pretend to determine the *proximate cause*, or essential pathology, of inflammation; contenting himself with a description of the mode in which the nutrition of the part and its physiological relations are observed to be altered after the process has begun. The description of the products of inflammation, though interesting and accurate, contains nothing to which we think particularly necessary to call the reader's attention, except the experiments upon the fibrinous and corpuscular elements found in the fluid from cantharides' blisters. In thirty cases in which the secretions of blisters were examined by Mr. Paget, he found that the differences in the products corresponded in some measure with the nature of the disease, so that he "could generally guess accurately, from an examination of the fluid in the blister, what was the general character of the disease with which the patient suffered." The distinctions observed are thus summed up:—

"The highest health is marked by an exudation containing the most perfect and unmixed fibrine; the lowest, by the formation of abundant corpuscles, and their nearest approach, even in their early state, to the characters of pus-cells."

In his description of the development and degenerations of inflammatory lymph, as in his appreciation of the phenomenon of ulceration, Mr. Paget places himself in harmony with the modern pathology, and thereby departs entirely from the point of view of John Hunter. The theory which ascribed ulceration to the absorbing action of the lymphatic vessels, and that which considered the products of inflammation, after coagulation, to be mere passive substances, moulded by the vascular tissues around them, find no favour in his eyes:—

"If it were required to point out what, since Hunter's time, has contributed most to the progress of general pathology, one could scarcely hesitate to name the full appreciation of the fact, that inflammatory lymph and other primary products of disease have an independent life, and are, of their own nature, capable of appropriate development, degeneration, and disease. We may regard this as one of the best achievements of the observations which Schleiden and Schwann began to generalize; for till it was clearly apprehended, the idea of a part being organizable meant scarcely more than that it admitted of being organized by the forces of the parts around it; that it could be built up by the arteries, and modelled by the absorbents as a material plastic, yet passive, in the hands of workmen. Hence was derived the erroneous direction of

inquiries, which sought from blood-vessels as the essential characters of organic life in a part; and for their varieties of size, and number, and arrangement, as the measures of the ability and method of development. Now, more truly, we may study the lymph as having a life only so dependent on the blood and vessels, as are all the tissues of the body dependent on them as conditions of life, but not as sole arbiters of the method or direction of vital transformation. And I venture to think, that the chief aim of our observations in this part of the pathology of inflammation should be to learn how the exact relation in which the several products of inflammation stand to certain primary forms, as developments or degenerations from them. The catalogue of the various corpuscles is already swollen to an extent that is confusing to those that are familiar with them, and repulsive to those who would begin to study them. It would be an easy task to increase it, and it might have a seeming of accuracy to do so; but what we want is such a history of the inflammatory lymph that we may arrange the components of this catalogue as indicating so many progressive stages of development, degeneration, or disease, in the primary products of inflammation. An attempt to construct such a history is the more advisable, for the sake of the illustration which it may afford to the history of normal structures. There are, as I have already said, no normal instances in which we can see the materials that are effused for the nutrition of parts; but we may assume something concerning them and their progressive changes from the analogy of the materials that are more abundantly produced in inflammation."

Almost every one, we think, who has engaged profoundly and intelligently in the investigations to which Mr. Paget here points will be disposed to concur with him as to the necessity of our applying ourselves to the discovery of laws rather than distinctions, and of cultivating real science rather than the pretentious technicalities to which truth and reality have too often been sacrificed in pathological histology. We have long been in the habit of anticipating a return to the simplicity of that nature which we have seen with our own eyes, but of which scarcely any of our modern books communicates the slightest idea; and we are happy to find in Mr. Paget one who is not to be distracted or dazzled by the false glare of microscopic refinements, and who is more anxious to be the teacher of a true system than the discoverer of a morphological novelty. We wish we could afford space for an analysis of the fifteenth, sixteenth, and seventeenth Lectures, which deal with the products of inflammation; but we could not possibly give more than a very inadequate idea of them, and must therefore commend them to the serious study of the reader who may be induced to turn to the original work.

The second and larger volume of Mr. Paget's treatise is devoted to the consideration of tumours, including cancerous and tubercular formations. In the classification and description of these we observe the same unaffected love for simplicity, and the same distrust of excessive refinement which we have noticed above. Nor is this the result of imperfect acquaintance with the objects he describes; for while arranging the Museums of the College of Surgeons and of St. Bartholomew's Hospital, as well as in his capacity of Assistant-Surgeon to the latter institution. Mr. Paget has had unequalled opportunities of studying almost every variety of morbid growth. The present volume is the result of these opportunities, and proves him to have brought to their improvement not only an amount of conscientious labour in observation which is truly surprising, but that sobriety and clearness of judgment which distinguish the able practitioner from the mere anatomist, and which have never yet, we believe, been brought to bear in so high a degree upon this difficult subject. It would be no compliment either to Mr. Paget or to ourselves were we to say that his conclusions harmonize in all points with our own; nor are we prepared even to assert that he has definitively adjusted any considerable number of the real difficulties connected with this subject; but we can most truly state, that we have never seen the evidence connected with these doubtful points stated in so clear, true, and exhaustive a manner; nor have we perused any work which may be so confidently and unreservedly recommended as being free at once from undue dogmatism and inconsiderate eclecticism. We feel ourselves throughout in the hands of a teacher who has left no stone unturned to discover truth; and with whom, at the same time, extensive reading and observation are less displayed than concealed in the large generalizations of which the author's doctrine consists. In suppressing the full details of his cases, while he gives us ample data as a foundation for his opinions, we cannot but think that the author has done well; although, in doing so, he has departed from the usual plan of such investigations, which, notwithstanding its unquestionable advantages in some instances, is apt, in many cases, to prove a most unnecessary incumbrance to the reader.

In the precise definition of a tumour, as in that of an inflammation, Mr. Paget is not, and does not profess to be, very successful or very novel. Neither does the distinction between malignant and innocent (as Mr. Paget somewhat curiously calls non-malignant) growths in general comprise any elements which would be new to our readers, although the whole

of this introduction to the subject is beautifully expressed, and replete with apt illustrations. In the classification of the simple tumours, the author adopts the plainest and most generally acknowledged principles; and here, too, he is content to resign novelty in favour of truth. Admitting the great difficulty of good classification, he yet maintains its importance to a successful study of tumours.

In dealing with the cysts, which he divides into barren and proliferous, Mr. Paget, following the observations of John, Simon, Rokitansky, and Mettenheimer, traces them down to their minutest forms as arising in expansions of the natural elements of the parts in which they occur. He describes the cysts in the kidney, placenta, ovary, and thyroid gland, as being the overgrowth of natural cell-forms; while some others are found by the dilatation of follicles, or the expansion of areolar spaces; and with this explanation we might, perhaps, be inclined to rest satisfied were it not that it leaves unsolved the chief difficulty, whence the cystic structures of disease derive their enormous power of growth, and in some instances of multiplication.

The fatty, fibro-cellular, and fibrous tumours, together with their varieties and composite forms, are discussed in Lectures IV. and V.; we pass over this portion of the work, however, as involving few controverted questions, and take notice only of the very remarkable facts mentioned at p. 151, *et seq.*, with respect to what Mr. Paget calls provisionally, "till their characters are more perfectly known," *malignant fibrous tumours.* The abridged history of the cases alluded to may be given as follows:—A woman, forty-seven years of age, had a tumour removed from the breast, which, by its external characters and mode of growth, had been, previous to excision, pronounced cancerous. After removal it presented, to Mr. Paget's most careful examination, no other character than that of a fibrous tumour, such as is seen in the uterus. It yielded gelatine in boiling, and contained no cells. The subsequent history of this case was in all respects that of cancer; return of similar tumours, both in the neighbourhood of the original site and in the lungs; and death after a second operation from an obstinate and extended cancerous-looking ulcer which ultimately was nearly a foot in diameter, and had walls like the finest kinds of medullary matter. The internal tumours were in this case entirely fibrous; there was, therefore, no evidence of a change in the type of the disease. The case is certainly one of a very rare and peculiar kind. Two similar histories, though scarcely so complete, are narrated; the one relates to a recur-

rent fibrous tumour of the scapula, which caused death after a second operation, similar growths being found in the lungs; the other to a tumour of the back, of fibrous character, which was excised nine months after an operation for a similar tumour in the same region. The event of this case is not stated.

Lecture VI. is devoted to recurring fibroid and fibro-nucleated tumours: two very peculiar forms of growth consisting, not, like the last, of well-developed fibres, but of fibre-cells, or of nuclei imbedded in a filamentous tissue. From their hypothetical nature (being supposed to contain the elements of nascent fibrous tissue), these tumours have been called by Lebert, *fibro-plastic;* they form, however, as we shall presently mention, only a portion of the group so called; the fibro-nucleated variety was first described by Dr. Hughes Bennett; and both kinds have been placed by these authors among the "cancroid" growths, from the fact of their not containing those cell-forms supposed to be essential to a truly cancerous structure. A very complete and careful statement of the facts bearing on these growths is given in this chapter, and we think Mr. Paget does wisely in refraining, in the meantime, from technical controversy, and adjudging them a place among the suspicious but not certainly malignant tumours. They are distinguished by their structure, as above indicated; by an extreme proneness to return at the original site; sometimes by a tendency to ulcerate; but on the other hand by the absence of a cachexia and general infection of the system, or of the lymphatics; and occasionally by the cessation of the tendency to recurrence, and complete recovery.

More or less akin to these growths are the "myeloid tumours" of Mr. Paget, which include a large proportion of the fibro-plastic growths of Lebert, especially those arising from bones, and known to surgeons as forming many cases of *epulis.* These are distinguished microscopically, not only by the presence of fibre-cells, as above described, but by "large, round, oval or flask-shaped, or irregular cells and cell-like masses, or thin discs, measuring from $\frac{1}{300}$th to $\frac{1}{1000}$th of an inch in diameter and containing from two to ten or more oval, clear, and nucleolated nuclei;" and the affinity of these last constituents to certain cells found in the marrow and diploe of bones has suggested to Mr. Paget the distinctive term above mentioned. M. Lebert, trusting to the absence of the so-called specific cancer-element, places these tumours unhesitatingly among the "cancroids" or pseudo-cancers, notwithstanding their formidable character, their tendency in some cases to ulceration, their frequent local, and occasional general recurrence. Mr. Paget, on

the other hand, although inclining to believe the myeloid tumours in their most characteristic form non-malignant, hesitates to commit himself to an exclusive statement on this point. Indeed, it would be difficult, in the presence of some of the facts narrated by him, to exempt them from the strong suspicion of malignancy.

We cannot afford space to dwell on the remaining classes of the non-malignant, or not decidedly malignant growths. On each of these—the cartilaginous, the osseous, the glandular, and the vascular tumours—the reader will find many facts of interest in the work before us; and in all cases the summary of conclusions is, beyond all that we have seen before, comprehensive and exact. The difficulties in the way of dogmatic statement are often, indeed, too great to be satisfactorily overcome; and in these cases it is very creditable to the author that he is content to state calmly and correctly both sides of the case, and then to leave it, without any affectation of superior penetration, in the hands of the reader. We are very far from thinking that Mr. Paget's authority as a writer will be at all weakened by these candid confessions of his own difficulties; we are sure it will not be so with those who are in any degree practically acquainted with the subject.

The malignant tumours, or cancers, are divided by Mr. Paget into the following varieties:—the scirrhous, medullary, epithelial, colloid, osteoid, melanotic, villous, and hematoid. In making this classification the author has, for the most part, employed terms familiar to the best-informed modern pathological students, and he has evidently been solicitous to avoid any appearance of unnecessary innovation. Some of the terms may appear unfamiliar to the ears of practical surgeons, or to those who have not recently revised their pathological information; but they have arisen out of the necessity of considering these growths from a new point of view—that which arises from the combination of microscopic data with those furnished by the unaided senses. The scirrhous, medullary, colloid, and melanotic varieties must be sufficiently well known—at least in general terms—to all; the hematoid includes many of the cases formerly called fungus hematodes by Mr. Wardrop; the epithelial, osteoid, and villous cancers may, perhaps, to some of our readers, require explanation.

Epithelial cancer is a disease long known to the surgeon in the form of the so-called pseudo-cancer of the lower lip, of the chimney-sweep's cancer of the scrotum, and of various kinds of suspicious or decidedly malignant growths from the skin, prepuce, labia, neck of the uterus, tongue, or œsophagus. Its

spreading character and tendency to local recurrence had long, by common consent, placed it among the suspicious growths; while the comparative frequency with which the excision was followed by a perfect cure seemed to remove it from the category of the decidedly malignant tumours. The difficulty experienced of deciding, *à priori*, in individual cases, as to the chances of return, led to a very natural suspicion that several varieties of disease might have been confounded under a common name, owing to the imperfect appreciation of structure by the unaided eye, and sanguine hopes were entertained by many that the microscope would prove successful in resolving these superficial growths into a malignant and a non-malignant class. These hopes seemed to be fulfilled in the works of M. Lebert, who first clearly described the microscopic structure of the epithelial growths, and who, according to his theoretical ideas of the essential anatomy of cancer, affirmed the non-malignant nature of the greater part of them. Without entering into the details of these distinctions—which would be unintelligible without some kind of pictorial illustrations—we may state in general terms, that the usual epithelial growth of the lip and scrotum may be regarded as the type of the "cancroid" of Lebert, and that his system of classification had a tendency to detach it from the group of the cancers, and place it in near relationship to the condylomata and warts. Facts which have accumulated in considerable numbers, and in the experience of various observers, since the first publication of M. Lebert's researches, have clearly shown, however, that, unfortunately for humanity, these inferences from the structure of epithelial growths cannot be sustained as a guide in practice; and it is now, we think, beyond all question, that the boundary wall placed by M. Lebert and his followers around the dark realm of malignant disease has been made, in this and other cases, to exclude structures whose affinity with the true cancers, both structural and physiological, can no longer be denied. The admirable statement of the facts bearing on this subject, in Lecture XII. of Mr. Paget's second volume, substantially agrees with all that we have been able to observe, as well as with what has been long known to practical surgeons; and we have little hesitation in commending to the attention of our readers the careful and elaborate chapter to which we refer, as a complete view (according to the present state of science) of the pathological relations of these very interesting tumours.

The *osteoid* and the *villous cancers* (the first described by Johannes Müller, the second by Rokitansky) are among the

rarer types of malignant disease. The former is hard, partially bony in structure, and resembles the ordinary cancers only in its disregard of the individualities of tissue, in its multiple production, and occasional combination with hard or soft cancer of the usual types. The villous cancer is a fungous growth, most frequent in the urinary bladder, the general pathological relations of which appear to approach the epithelial cancers, but of which the number of examples completely described is as yet scarcely sufficient for the full understanding of its nature.

The descriptions given by Mr. Paget of all the different varieties of cancerous growth are followed by an account of its general history; its relations to sex, age, &c.; its frequency; and other circumstances of pathological and practical interest, founded on an analysis of the whole of the very numerous cases which he has himself recorded. The value of this part of the work can scarcely be overrated as a foundation for subsequent inquiries; but its necessarily complicated character precludes us from entering upon its consideration.

In discussing the general questions connected with the pathology of cancer, the same clearness and impartiality of judgment, to which we have already referred, is eminently displayed. We wish we could quote at length his conclusions in relation to the characteristics of the cancerous structure, but we can only find room for a few sentences in which he disposes of the so-called heteromorphism of cancers. So quietly are his views stated on this point, that the reader will scarcely suspect that they are directly opposed in their results to some of the most ambitious speculations of the present day. It should be remembered, that though the supposed specific distinctions of cancerous structures have never been admitted, as a general rule, to be of the absolute kind sometimes asserted, they have formed the object of much controversy, and have misled the unwary and the enthusiastic to such an extent as to have brought microscopic inquiries into discredit with many very able and well-informed practical men.

"Various as are these corpuscles of cancers, it is yet to be observed, that there is none so entirely different from those of normal structures that we cannot point out among them its type or parallel. No observation since Müller's time has invalidated his demonstration of this principle. The experienced microscopist will, indeed, very rarely fail in the diagnosis of a cancer by its minute structures; but he only discriminates them as specific modifications of the nucleus, nucleated cell, endogenous cells, and other forms, *of which the types are in natural parts: he finds among them*

no new type-forms. In like manner, the elemental cancer-structures show *no method of growth or development which is without parallel in natural structures;* they are formed and increased according to the same general laws as are observed in the normal rudimental structures. Their peculiarities in this regard are chiefly in the seeming disorder that often prevails among them in the absence of an apparent singleness of design."

The question of homology and heterology in cancer is to a certain extent capable, like the shield in the story, of being differently viewed according to the position and antecedent prejudice of the disputants; but there can be little doubt that the tendency of microscopic investigation, on the whole, has been rather to break down than to raise up barriers between the malignant and non-malignant tumours. To see the truth of this position, it is only necessary to compare the doctrines of Paget, Virchow, and others, who represent the latest phase of the inquiry, with those of Lebert, who, a few years ago, promised a sure diagnostic aid to the surgeon in the "specific cancer-cell," and found not a few enthusiastic followers. Indeed, any one who consults the last work of Lebert will be satisfied that he is himself engaged in explaining away his own refinements, although, perhaps, still unconscious that in doing so he has, like Prospero, broken the magic staff, and drowned the book that appeared to herald a new era in practical surgery; and there is little doubt that the observations which he has given to science will continue to be valuable, and to bear testimony to the general excellence and accuracy of his labours, long after the theory which originally bound them together has been consigned to the limbo of scientific vanities. Again, who is there that does not remember the mysterious significance supposed to belong to "caudate corpuscles," on the suppositious authority of some passages in Müller's admirable essays on the characteristics of tumours? If these speculations have been disowned by modern inquirers, it is not the less true that science has reaped a large and legitimate harvest of important principles, and instructive observations, from the attempt to solve the difficulties of the surgeon; and now that a more reasonable view has been taken of her aims, and that there is less disposition to look upon every new discovery in morphology, singly, as the talismanic key to Nature's cypher-writing, the observations of Müller, Gluge, Lebert, Sedillot, Bruch, Henle, Virchow, Bennett, and a host of others, will be turned to their best account. In works like that before us, the flippant scepticism too common among surgeons, and the whimsical mixture of dogmatism and uncertainty which generally

distinguishes the Laputan philosophers that can only see correctly through 800 diameters linear microscopic power, stand alike reproved and corrected. Every one who has observed the mode in which practical surgeons have encountered the new circle of ideas opened by microscopic inquiry must have often seen the great interests of science and truth sacrificed to the desire of a petty personal triumph. No doubt both parties have been to blame for this; and the microscope, as an instrument of scientific inquiry, has suffered as much from the eager haste of some to be wise by it alone, as by the culpable indifference of others to the results attained by it. The day has happily gone past, however, when its usefulness can be brought into controversy; and we trust that we may now await the result of further discussions on disputed points of pathological science without feeling that the world is divided into two great parties, each of which, with very imperfect ideas of the questions at issue, is trying to force its own hasty intuitions upon the other, and thus to narrow, instead of widening, the basis of our knowledge. Mr. Paget's work proves that he has had the hearty co-operation and confidence of his colleagues at St. Bartholomew's Hospital, and of many other surgeons in and out of London, in his most successful enterprise; and we cannot but believe that men of like mind with him will everywhere have it in their power to overrule the small prejudices and petty polemical spirit to which we have alluded, and thus to advance that fusion of modern investigations with the results of past experience, which is essential to all sure progress.

It only remains for us to notice the concluding Lecture, which, though dealing more in medical than in surgical illustrations, is to our mind one of the best in the volume. In describing *tubercle*, and following out the general pathology of its changes, Mr. Paget gives a very condensed but extremely complete account of his own experience in regard to the structural peculiarities of pulmonary tubercle, and of its changes in the direction of *withering*, *calcification*, and *softening*. He adopts, to a considerable extent, the views of recent observers, which tend to show that the elements of tubercle are a degeneration of the normal tissue—elements, rather than a new formation. The "specific tubercle corpuscles" he regards as shrivelled nuclei and imperfect cells, the most abundant and distinct, but not the exclusive or essential elements of a tubercular formation. In the lungs he refers them, like Virchow and Schroeder van der Kolk, to changes in the epithelial cells of the air-vesicles; and though we do not entirely coincide in this

opinion, at least without stating it in a different and, as we think, more comprehensive manner, we are unwilling, in the limited space that remains for us, to do more than hold out this as a point deserving of reconsideration. The disputed question of the relation of tubercle to scrofula is discussed in an admirable spirit, the author admitting the vagueness of the term *scrofula* as at present used; but being content apparently to leave it in the hands of those who require it, instead of abolishing it at once, like Henle, or cooping it up within the limits of an arbitrary definition, as many of the French pathologists have done:—

"It has been proposed, but I doubt whether it be practicable, to make 'scrofulous' and 'tuberculous' commensurate terms. As at present generally employed, the former has a much larger import than the latter. The relation between the two is, that the 'scrofulous' constitution implies a peculiar liability to the tuberculous disease, and that they often co-exist. Their differences are evident, in that many instances of scrofula (in the ordinary meaning of the word) exist with intense and long-continued disease, but without tuberculous deposit; that as many instances of tuberculous disease may be found without any of the non-tuberculous affections of scrofula; that, as Mr. Simon has proved, while the diseases of 'defective power' may be experimentally produced in animals by insufficient nutriment and other debilitating influences, the tuberculous diseases are hardly artificially producible; that nearly all other diseases may co-exist with the scrofulous, but some are nearly incompatible with the tuberculous.

"Now whether we disuse, or still use in its vagueness, the term scrofula, we may make a group of the 'tuberculous' diseases, defined by the peculiar morbid product, of which I have described the chief characters. Only at present we must be content, I believe, to be sometimes in doubt whether the substance found in lymphatic glands, and commonly known as scrofulous matter, be truly tuberculous matter or degenerate lymph or pus."

We conclude with the above extract our notice of a work which has afforded us a satisfaction much more complete than usually falls to the lot of the critic, and which will long be looked upon as a classic in English medical literature, whether we regard its matter or its style. If we have adverted to but few points where our own opinion differs from that of the author, it is because he has invariably left those points to a certain degree open to discussion, after laying an impartial statement of facts and arguments before the reader; and perhaps it forms the best concluding commentary we can make on the spirit that pervades these volumes, to say that although our own

studies in these matters have embraced nearly all the more important subjects referred to, and have been in no degree guided by those of Mr. Paget, we have not once thought ourselves obliged to remark on a statement as being undoubtedly incorrect, or on a theory as being much too dogmatically expressed. The book, therefore, is, in our opinion, eminently safe, as well as eminently instructive.

Introduction a l'Étude Médicale et Philosophique de la Surdi-Mutité. Par M.-E. Hubert-Valleroux, D. M. Paris: Victor Masson. 1853. 8vo, pp. 126.

The Academy of Medicine of Paris has been very lately engaged in considering a most important question to every lover of humanity,—the curability of the deaf-mute. Several sittings of that learned body have been devoted to an inquiry into the nature and causes of this singular infliction and its remediability; and numerous works have within the past half-year been published on the subject. Many possess both much interest and merit, but from among them we select that of M. Hubert-Valleroux, which, clear and concise, will enable us to lay before our readers a brief outline of the sum of our knowledge on deaf-muteism, viewed as a malady within reach of the medical art.

A follower of M. Itard, to whom so much is due for his investigations into the true nature, causes, and treatment of deafness, the author, adopting as his motto an extract from the writings of that eminent man, "Placé ou, pour mieux dire, ignoré entre les confins de la philosophie et de la médecine, le sourd-muet n'a jamais été bien étudié ni par l'une ni par l'autre," proposes to undertake a similar inquiry into deaf-muteism. He had at first intended to have delayed publishing until he had completed two large volumes on the subject, in preparing which he has been for a considerable time engaged; but, yielding to the advice of some medical friends, the present *resumé* of the results of his labours is now issued to the profession. This essay is divided into eight chapters, the first three of which may be considered as introductory, yet containing matter of much interest on the distribution of deaf-mutes as regards the population of the world, the importance of their treatment, the nature of diseases of the organ of hearing, and the causes of deaf-muteism.

The number of persons afflicted with this woful infirmity is much greater than is ordinarily supposed, amounting to not

less than 30,000 in France, and being calculated by the most recent statistical inquiries at 300,000 in Europe, "sufficient," as M. Hubert-Valleroux observes, "to people three first-class cities." They are, however, very unequally distributed over the face of the globe, and present a singular alternation with the blind. Where cases of blindness predominate among the people of different countries deaf-muteism is rare; and, on the other hand, where the latter is in excess, blindness is less frequent than usual. "As we approach the equator," says the author, "blindness predominates; for example, in India, in Egypt, and in Ethiopia; it is also in excess in the Arctic regions, amongst the Laplanders, the Tartars, and the Esquimaux. But deafness is of more frequent occurrence in temperate climates, and especially in mountainous regions, as in Switzerland; there we find a single canton, that of Berne, for example, in which one deaf-mute occurs amongst every 250 inhabitants; the district of Schwarzenburgh, 1 in every 103 individuals; and the Commune of Weyach, 1 in every 44! In this same Switzerland, within an area of a few hundred miles, we are presented with a remarkable example of the contrast just indicated. The northern part of the basin of the Aar, which is low and moist, and the western part, which is connected with the Alpine formation, both contain a vast number of deaf-mutes and but few blind; while the southern portion, opposite to Jura, which presents an exactly reverse climatic condition, abounds in persons afflicted with blindness, while the deaf-mute is of rare occurrence." This is a most singular dispensation of Providence, which, as far as we are aware, has been here for the first time fully noticed, and in proof of the truth of which the author gives several other examples. Its occurrence may, we think, be explained on true physiological principles: the great preponderance of light, whether directly from the rays of the sun in the torrid zone, or reflected from the snows of the northern climates, is a powerful cause of blindness; while the absence of light, together with dampness and moisture in excess, predisposing to insufficient development of the body generally, may be regarded indirectly amongst the causes of deaf-muteism. A certain geological formation of a district preventing a permeation of the surface water, and thereby keeping the soil in a continued state of dampness, as pointed out by Schneider, Amstein, Studer, and Schmalz, must for the same reason be taken into account in estimating the causes of the distribution of this infirmity amongst the peoples of the world. Moral influences, also, have a decided effect, as is well exemplified by the black population of the

United States of America, amongst whom deaf-muteism is excessive, amounting in some places to 2 per cent.

The more immediate causes of deaf-muteism, according to the author, are—hereditary tendency, which he places in the first rank; near relationship of the parents, which we regard with him as a well established fact; and passion, powerful excitement, or excessive fright of the mother while pregnant. Deafness resulting from disease in early infancy is manifestly the most direct cause, but in this case the affliction cannot of course be regarded as congenital.

In the fourth chapter the author describes the characters of deaf-muteism. Equally varied as the causes by which it is produced are the organic lesions on which it depends, and no matter how much education may improve and correct the manifest symptoms, it rarely and with great difficulty effaces them altogether. "The deaf-mute seldom holds himself erect; his attitude, naturally stooped and awkward, demands close attention and lengthened time to be brought even to the ordinary carriage of children of his age. Inquisitive, inclined to talk, with no other means of expression than gestures, he is continuously mimicking everything, and grimacing, his features, little intelligent though they are, being in a constant state of singular mobility. Impetuous, and of extraordinary vivacity, the movements of most deaf-mutes are nevertheless gentle and curiously graceful. Our celebrated tragic actress, Rachel, witnessed with admiration the depth of power and charm of gesticulation in many of the pupils of the school at Nancy, especially in Miss Ackerman, whose education does great honour to M. Piroux." The truthfulness of the foregoing description of M. Hubert-Valleroux will be recognised by all who have paid the least attention to persons thus afflicted, and in the same eloquent strain, from which we regret not being able to afford room for lengthened extracts he paints the features which characterize the deaf-mute.

The existence of deaf-muteism from birth, according to the author, is, contrary to the popular belief, the exception, and not the rule. Itard reports, that of 51 pupils in the institution at Leipsic but 22 were born so; at Prague there were only 19 congenital cases out of 54; and nearly similar results were obtained at Cologne and Hamburgh, on the Continent, and in Hartford and Philadelphia in the United States. But here it must be remembered how very difficult it is to come to a correct conclusion as to whether an infant under a year old is deaf or hears, and also that parents are naturally very unwilling

to acknowledge that their children are born deaf-mutes; nevertheless, many cases can be distinctly traced to attacks of the eruptive fevers, head affections, &c.

In his fifth chapter the author commences to speak of the curability of deaf-muteism. He first glances at the fact of the affection being made the prey of quacks who confidently promise a cure in all cases, especially noticing the claims of mesmerism in the last century, and animal magnetism in the present day, as affording a certain means of restoring both hearing and the power of speech, yet always resulting in disappointment of the hopes of those submitting their friends and relations to the operations of either; and then refers to medical men who, adopting the opposite view, affirm the total incurability of deaf-muteism. Taking a mean between both, M. Valleroux affirms that sufficient unquestionable evidence exists to prove, that in some cases nature either alone, or aided by art, has effected a cure in the case of the deaf and dumb, and, therefore, that its curability is beyond doubt. In proof of this assertion he narrates some cases from the writings of others, in some of which perfect recovery took place spontaneously, and in some from medical treatment.

"The deaf-mute, who offers the most favourable hopes for treatment, is the one in whom *accidental* deafness has occurred at the age in which children begin to hear and to speak, and who still retains some power of hearing and of speaking. If the organic lesion, the primary cause of the infirmity, has its seat *without* the nervous centres; if the child endowed with intelligence has neither brothers nor sisters similarly affected; if his parents were healthy,—not blood relations; and if he has not been before submitted to treatment; the chances of cures are favourable, almost certain if all the above circumstances characterize the case; on the contrary, if one or more of them are absent, the chances become proportionately unfavourable; and when none of them exist, the prospects of cure are but trifling. We may, however, expect to ameliorate certain cases of deafness which are congenital, or which have resulted from the eruptive or catarrhal fevers during the earlier months of life: of this I have seen more than one example. But we cannot hope to cure or even improve the condition of those in whom the malady has followed upon fevers or cerebral lesions."

We should not, however, concludes the author, be too positive in our prognosis as regards incurability in any case, for the *vix medicatrix naturæ* is in some instances wonderful. In illustration of this he narrates the case of a boy nine years old, who had never spoken, and who could scarcely hear the sound

of a cannon, and whose only sister was a demi-mute; moreover, both had been previously treated unsuccessfully by a celebrated practitioner. After thirty sittings—the boy was still under treatment when M. Valleroux wrote—he could not only hear the vowels, but, the voice being modulated, reply to a number of questions without seeing the speaker. The Eustachian tubes were in this case closed, and the sensorial apparatus in a state of complete torpor. The medical treatment consisted in catheterism of the Eustachian tubes, and the insufflation of stimulant vapours into the cavity of the tympanum.

M. Valleroux well remarks on the empiricism which exists generally among medical practitioners in the treatment of deafness and other diseases of the ears; they hesitate not to use the most severe and painful remedies in these affections, the true nature of which they are ignorant of, while in maladies of other organs with which they are well acquainted they would fear to have recourse to such heroic measures. Partial resection of hypertrophied tonsils is the most painful operation he has ever practised, and this even but very rarely; catheterism of the Eustachian tubes he uses freely, and he has also much faith in injections of medicated vapours into the cavity of the tympanum. The vapours he employs are those of the gum-resins and essential oils, very rarely either ether or ammonia. He also applies to the throat solutions of nitrate of silver and of tannin, —the latter in a saturated state he has found very beneficial when applied daily. As an external counter-irritant he uses a mixture of three parts of almond oil and one part of croton oil, rubbed over the skin, near the angle of the lower jaw, so as to produce a redness which would last for from two to five days. In all cases especial care must be taken to make a correct diagnosis as to the cause of the deafness before these remedies are used. According to the circumstances of individual cases, M. Valleroux administers emetics—which were highly thought of by Itard—purgatives, alteratives, tonics, &c.

"It should never be forgotten that in the treatment of deaf-muteism, more, perhaps, than in any other infirmity, the first condition of success consists in affording the patients such care and hygienic precautions as experience has proved the necessity of. If the deaf-mute is left in the unfavourable condition in which he has contracted his malady, or if the scrofulous, syphilitic, or other constitutional derangement, under the influence of which his infirmity has been developed and persists, be not attended to, all efforts of cure will prove miserable failures."

The seventh chapter opens with the following theorem:—"To restore hearing to a deaf-mute will not suffice to give him

the power of speech." It is, therefore, necessary to provide institutions presided over by persons who have made the teaching of language to such individuals a special object of study in order to complete the cure but partially effected by medical treatment in the restoration of hearing. M. Valleroux here notices shortly the errors of Itard and others who have written on this subject, but refrains from an exposition of the views which, in conjunction with M. Valade Gabel—who has specially devoted himself to the educational cure, if we may so term it, of deaf-muteism—he has arrived at and successfully put in practice, until the publication of the large work on which, as we have already stated, he is at present engaged, and to which the present essay is prefatory.

In the eighth and last chapter are contained some "philosophical considerations on language," chiefly with reference to the complete curability of the deaf and dumb.

The Pathology of the Bronchio-Pulmonary Mucous Membrane. By C. Black, M. D., &c., Chesterfield. Edinburgh: Sutherland and Knox. 1853. 8vo, pp. 99.

To trace the advance of medical science, and detail those various steps by which it has attained to its present altitude, would involve an analysis of the various means employed for the guidance of the judgment, and the formation of just opinions. To those curious in such matters, no subject could be more interesting than the improvement which has of late years been perfected in the diagnosis of thoracic diseases. The history of their progress is a lesson in medical philosophy which establishes beyond doubt, that for the practical purpose of cure, or the scarce less important duty of opinion, the careful observation of manifest effects in a great measure supplies the deficiency which our imperfect acquaintance with less evident exciting causes, or coexisting conditions, of necessity entails.

The study of the vital pathology of thoracic diseases has since the days of Laennec been each day progressing. As Irishmen we feel no small pride that many of the most important additions to the medical literature of this class of affections have emanated from those either occupying prominent positions in the Dublin Medical School, or who, within the wards of our metropolitan hospitals, had laid the foundation of European reputation.

The appearance of Dr. Black's work on the Pathology of the

Bronchio-Pulmonary Mucous Membrane we greet with every feeling of satisfaction, since it promises to supply the only deficiency that at present we are conscious of in the diagnosis of the most important, because the most-widely-extended class of diseases, on the just estimation of which so much of the honour of medicine depends.

The affections of those more obscure organs, whose physical examinations are less within our reach, have already had much of their doubt and uncertainty dispelled by the practical application of those collateral sciences whose aid Dr. Black has the merit of having, in a less difficult class of affections, rendered subsidiary to the means we already exercise for the purposes of their recognition. That which histologists have accomplished for the diagnosis of renal and hepatic affections Dr. Black essays in his present publication. Investigations of such a character as those which he has instituted being, we conceive, all that is required to invest the diagnosis of diseases of the pulmonary structures with as much of certainty as the physician can hope to obtain.

Premising that a correct knowledge of diseased structure, and of diseased action, predicates a perfect acquaintance with healthy structure and with healthy action, Dr. Black enters fully into the description of the normal condition of the bronchio-pulmonary membrane, in which his opinions are somewhat different from those to which other authors have already given expression. Dr. Black writes:—

"In contradiction to the statement, that the epithelium is not continued into the ultimate cells of the lungs, it may be observed, that if a very thin slice of pulmonary tissue be taken from the surface of the lung, macerated for a short time in distilled water to decolorize it, and be afterwards subjected, between two slips of glass, to the microscope, each pulmonary cell is seen to have a perfect lining of epithelium."

That this continuity of structure which Dr. Black demonstrates might, in the absence of such direct proofs, have been inferred from the due appreciation of disease as evidenced by auscultation, we believe experience establishes. Dr. Stokes, in his master work, speaking of pneumonia, observes (p. 309): "When we find that this parenchyma is made up almost altogether of air-cells and minute bronchial tubes, and when we examine a lung which has passed into the more advanced stages of pneumonia, and observe the filling up and distention of the cells, and the exudation into and obliteration of the minute

tubes, we must admit that he who would call pneumonia a bronchitis of the terminal tubes, would be hardly guilty of a misnomer."

The pulmonary epithelium has its double use for the purposes of the economy. The protection of the basement membrane by the formation of a continuous layer, and the secretion or elimination of a special fluid for its lubrication, while a further and most important office, Dr. Black believes, it is also adequate to fill, since, in certain morbid conditions of the system the epithelial cells act the part of true excretory organs when, through them, morbid elements are eliminated from the blood. An analogy is thus established between the secreting surfaces of the pulmonic and those other viscera, which, in specific diseases, are believed to be accessory to certain chemico-pathological changes,—the difference between the eliminative action of the two epithelia being, that in the class of diseases of which Dr. Black treats, the evidences are physical, tangible, and chemically determinable, while the morbid products in the other are assumed, and as yet elude our most delicate means of research.

The microscopical analysis of the primary or basement membrane, as also of the fibrous tissue of the bronchio-pulmonary membrane, is fully set forward, leading to the inference that the presence of epithelial scales in the secretion of the latter is partly owing to the abortion of the epithelial nuclei, partly to the detachment of the growing nuclei from their nutritive matrix,—since the process of cell-growth being capable of interruption by the operation of accidental causes, all the nuclei of the basement membrane do not attain perfect cell-development, and thus patches of its superficial layer appear in almost every specimen of the fluid examined.

Having entered into the minutiæ of organic construction, as shown by microscopical investigation of the several tissues, the author observes:—

"Were life dependent on a strict maintenance of these exact conditions, disease would in every instance prove fatal. To obviate this, we find that life may be maintained, although perfect health may not be enjoyed, within a certain range of excess or deficiency of action of the different organs which contribute to the preservation of life, by virtue of the similarity of action of the different parts of the same organ, and of a kind of compensatory action of organs exercising a totally different function in the system."

Comparison is thus admitted as the only safe foundation for an opinion, whether it be based on the observation of physical

changes, or the estimation of their consequent vital manifestations.

Dr. Black, in his experiments respecting the coagulability of albumen, differs from the result arrived at by Dr. Carpenter, inasmuch as he observes, that acetic acid, contrary to the opinion expressed by physiologists, does not *dissolve* albumen, but, like other acids, *coagulates* it. The author, however, agrees with Kirkes and Paget respecting the solubility of "coagulated albumen" in acetic acid, if boiled with it, while denying that the process of simple digestion is adequate to such an end. The want of accordance between their results seems to consist in the details of the process employed not being sufficiently explicit, since it is admitted, that albumen is soluble by digestion in the solution of caustic alkali, and by boiling in acetic acid. The matter is too easy of demonstration to admit on other grounds of so material a difference. That acetic acid coagulates albumen in its natural state, but is also capable of perfectly dissolving the same coagulum when subjected to boiling heat, Dr. Black has in his experiments verified.

Proceeding to the investigation of the diseases and lesions of the bronchio-pulmonary mucous membrane, we find them ranged under the following heads:—

1st. Inflammatory diseases.

2nd. Diseases for the most part non-inflammatory.

3rd. Lesions of structure.

While inflammation of the bronchio-pulmonary membrane may be,—1. Simple, acute, or chronic; 2. Sthenic or asthenic; 3. Specific; acute inflammation is subdivided into:—1st. Simple acute epithelial bronchitis. 2nd. Bronchitis involving the sub-mucous tissue. 3rd. Cellulitis, or inflammation of the epithelium of the pulmonary cells.

The first pathological condition of epithelial bronchitis is described as being characterized by inordinate congestion of the blood-vessels, when narrowing of the caliber of the air-tubes is consequent on vascular pressure. Hence arises the sensation of a tightening of the breathing, and of oppression in the chest. This pressure, acting as an irritant on the accompanying pulmonic nerves, by reflex action induces cough, which is at first unattended with expectoration, owing to the temporary suspension of the supply of the nutritive blastema furnished by the blood. At length, in the surcharged vessels the continued pressure of the blood overcomes the vital tonicity of the capillary walls, and exudation is poured out more quickly than in the healthy nutrition of the part. A condition identi-

cal with this has been described by Dr. Stokes as denoting the first stage of pneumonia, in which "the lung is drier than natural, with intense arterial injection. No effusion of blood into the cells." So far ordinary and microscopical observation coincide.

This doctrine of reflex action through the pulmonary nerves may sufficiently account for the paroxysmal attacks witnessed in asthma and hooping-cough, as well as those sudden nervous complications which arise pending many chest affections; while the apparently normal character of the sound elicited by percussion is justly ascribed by the author to our incapability of appreciating those fine differences of necessity present. The ordinary laws of acoustics would negative the supposition that, consequent on such admitted differences of structure, the production and transmission of sound would be unaffected.

Many years have elapsed since it was written[a],—"It would be an interesting question, as connected with the want of dulness in bronchitis, to determine whether, pending the turgescence of the bronchial membrane, some degree of dilatation of the air-cells may not exist, so that the air thus accumulated might compensate for that which has been displaced by the state of the mucous tissue. Could we thus account for the clearness on percussion, notwithstanding an extensive congestion of the minuter tubes?" We shall find this inquiry is answered in a more advanced part of the present work.

This uncertainty of percussion is fully counteracted by the fact that, consequent on the diminution in the diameter of the affected bronchi, the inspiratory and expiratory air is thrown into sonorous vibrations, and hence the production of certain ronchi, the loudness and shrillness of which are proportionate to the size of the opening, the sharpness, tenseness, and rigidity of its edges, as well as the rapidity of the moving column of air. The negative and positive indications thus assist each other, since the chief guide to diagnosis rests "in the absence of dulness, and the existence of acute irritation of the lung"[b].

Reasoning on this pathological condition, the treatment indicated is:—1. To unload the overburdened capillaries. 2. To prevent their subsequent distention. The means the author proposes are,—general depletion, purgation, and increasing the secretions generally, with the constant breathing of *cold* air, by which the tonicity of the capillary vessels may be both excited and maintained.

[a] Stokes' Disease of the Chest, 1837, p. 68. [b] Stokes.

"The second pathological condition of epithelial bronchitis," or the stage of secretion, is characterized by the presence of mucous and submucous ronchi, when, consequent on the elimination of mucus, the surface of the membrane is covered with an excess of its natural secretion, coincident with which is the reduction in size of the distended capillary vessels, and relief of the pressure they exercised on the nervous filaments, leading to corresponding diminution of the cough.

This disease microscopical observation seems to point out as consisting in "an excessive nutrition, arising out of an overplus of nutritive blastema supplied to the basement membrane, and consequently exciting inordinate cell-growth in its epithelial covering." From the absence of all inflammatory exudation in the bronchial secretion it is concluded, that the submucous tissue is not affected. The author thus differs from Dr. Williams, who regards the degrees of intensity of acute bronchitis to be a question rather of extent than of pathological character, inasmuch as, in the milder kind (epithelial bronchitis), there is presumptive evidence that the submucous tissue is not the seat of exudation; whereas, in the severer kinds of bronchitis, inflammatory exudation invariably occupies that structure. The microscopical appearance of the secretion in this stage is as follows:—

"It consists of well-formed mucus-corpuscles, mingled with epithelial or basement patches, floating in a viscid fluid menstruum—the contents of cells which have already liquefied. The epithelial or basement patches are chiefly present in the first portions of the secretion, and are caused by a blighting of their cells by the suspension of the natural fluids, transudations from the blood through the basement membrane during the previous stage of the disease. Sometimes these patches are formed entirely of epithelial cells which have almost attained a perfect development, but which yet cohere by their edges."

The curative indications deducible from such appearances are:—1. To diminish the supply of nutritive blastema to the basement membrane, and thereby to limit the amount of cell-growth upon its free surface. 2. To restore the vital tonicity of the bronchial capillaries, and thus to enable them to reduce their quantity of blood to the healthy standard. For the means the author proposes to accomplish these indications we must refer to the work itself.

The difference between bronchitis involving the submucous tissue and the epithelial variety is thus specified:—

"Epithelial bronchitis is always acute, whereas the above variety

may be either acute or chronic. The former is always sthenic in type; the latter is either sthenic or asthenic. In epithelial bronchitis the epithelium and basement membrane only are affected; in the above variety the submucous tissue is likewise involved. In the former the discharges from the affected membrane consist of epithelial scales or patches, and an excess of the natural secretion; in the latter, certain organic and inorganic bodies are added to the above. The effects of epithelial bronchitis are, epithelial desquamation or ulceration, and epithelial and basement hypertrophy. Of bronchitis involving the submucous tissue, ulceration, hypertrophy, bronchial abscess, and bronchial obstruction, as primary; and emphysema, bronchial dilatation and collapse, and atrophy of the pulmonary tissue, as secondary."

The submucous tissue being involved, the bronchial congestion is more intense, and the phenomena arising out of it proportionately aggravated; while, in this stage, if the disease is at all extensive, and more particularly if it affects the capillary bronchi, a slight yet manifest deadening of the percussion sound is present.

The modification of dulness in this stage is regarded by the author as being dependent on the extent and type of the disease, and on the particular bronchi affected. The suggestion of Dr. Stokes respecting the rarefaction of the included air, owing to the impediment offered to expiration by the narrowing of the bronchial tubes, is negatived on the ground, that the force of the expiratory act more than counterbalances the slight opposition afforded by the mere turgescence of the bronchial membrane.

The indications for treatment are:—1. To relieve the congested condition of the bronchial membrane, by derivation of blood to the skin, and occasionally to other organs, for the purpose of increasing their function. 2. To maintain the due aëration of the blood, and to give to the latter sufficient nutritive materials to support the general system, and to restore its deficient tonicity. 3. To gradually excite the vital tonicity of the capillary walls, by the constant inhalation of a cool air.

In the second stage of this form of bronchitis involving the submucous tissue, the presence of pus-cells in the exudation is regarded as being due to the action of oxygen on the structures of the plastic corpuscles, by which they undergo an *adipocerous* degeneration, similar to the well-known effect produced on dead muscular tissue when exposed to moisture, and to a very partial contact with air. This transformation from the exudation to the plastic corpuscle, and thence the formation of the pus-cell, indicates a lesion of vi-

tality, involving the fibrine out of which they spring, the deficiency of the constitutional powers being in proportion to the dimensional and figurative aberration of the cells from the standard of healthy pus.

From microscopical observation, Dr. Black is led to the conclusion that it is an error to suppose pus can be formed on the free surfaces of mucous membranes without there being any breach of structure, "since every case of pus from mucous surfaces is invariably preceded by epithelial desquamation, and not *unfrequently* by ulceration of the basement membrane itself." On this point we may observe, "the secretion from a diseased mucous membrane gradually changing from mucous to purulent, independently of ulceration, was pointed out by Professor Charles Badham in 1808, while the gradual transformation of mucous corpuscles, or rather the succeeding of purulent to mucous secretion from the same secreting surface, was first distinctly shown by Vogel, and figured by him in his 8th Plate"[a]. Dr. Black regards one secretion as a modification of the other, consequent on the different degrees of vitality.

By the term "pulmonary cellulitis" the author proposes to designate inflammation confined to the epithelium of the pulmonary cells,—"a disease which is extremely prevalent amongst children, and often regarded as pneumonia, and which is not rare even in adults." In the second stage of this affection the physical signs are identical with those of Laennec's first stage of pneumonia, while the pathological condition indicating its development is similar to that Dr. Stokes lays down as being the first step in pneumonic inflammation. In both affections we have cough, dyspnœa, sense of internal weight and burning, quickness of respiration, diminished volumes of air entering the affected lung, local dulness, and increased resonance, with compensating action of healthy organ; while in the more advanced period of the sinking stage the sputa are copious, of a thinly viscid character, and of a prune-juice colour. Fortunately for the patient, the diagnosis between this affection and the earlier stages of pneumonia does not materially affect the treatment, which is similar to that indicated in bronchitis involving the submucous tissue.

In corroboration of the fact that through the epithelial cells morbid elements are eliminated from the system, Dr. Black adduces three cases, which prove that "when a constitutional peculiarity, a particular diathesis, or another disease,

[a] Hasse's Pathological Anatomy, p. 264.

is associated with cellulitis, the exudation from the pulmonary membrane contains frequent evidence of the presence of certain products, dependent on such peculiarity of constitution or other disease in the system." That the excretion from the lungs partakes of the characters of the circulating fluids, and is modified by special constitutional states, observation of disease has long established. The fact now brought prominently forward is important to be borne in mind, as explanatory of many of those cases of apparently sympathetic pulmonary irritation.

In his observations on chronic bronchitis, the various pathological conditions which arise pending its continuance are fully detailed, the different forms of sputa being classed under four varieties, which depend on the particular pathological condition of the affected membrane, on the age and on the constitutional powers. These varieties are as follows:—1. Sputum of plastic bronchitis; 2. Sputum of the early stage of simple chronic bronchitis; 3. Sputum of the latter stage of simple chronic bronchitis; 4. Sputum of simple bronchitis. We are unable to do more than particularize the forms described; every practical physician will read this portion of Dr. Black's volume with advantage, since truths are therein confirmed, as well as doubts removed. In his observations on the sputum of plastic bronchitis, which has already been so ably described in the writings of Raynaud, Baillie, Stokes, and others, the author states that the differential diagnosis between those casts the products of simple bronchitis, and those resulting from a tuberculous diathesis, depends on the shortness and absence of ramifications in the latter, with the presence of granular bodies, and epithelial scales studded with granules, cast off by the other parts of the generally affected bronchio-pulmonary membrane. In certain cases the application of electro-galvanism daily to the spine is advocated: the observation of other writers is confirmed by that of the author, who testifies to the frequent benefit which results from its use.

Dr. Black concludes his valuable essay by an inquiry into how far are the different forms of asthma dependent on inflammation of the bronchio-pulmonary membrane? He recognises two distinct forms of the disease.

"The one in which the paroxysm comes on suddenly, and is followed by an interval of perfect ease, during which there is neither the slightest difficulty of breathing, nor the least increase of the bronchio-pulmonary secretion; the other, in which the invasion of the paroxysm is more gradual, in which there is more or less straitened breathing during the interval, and in which the secretion

of the membrane is somewhat greater than that of health, and is also changed as to its physical appearance to the naked eye, as well as being microscopically and chemically different."

The first, nervous or dry asthma, to which the term "sympathetic" is considered as most applicable, is, from its uncertain pathology, involved in much obscurity; and, from the absence of definite pathological conditions, is but lightly entered on. The second is regarded as being consequent on chronic inflammation of the bronchio-pulmonary membrane, the microscopic examination of the sputa indicating such to exist. The general thickening of the membranous structures which ensues is, in some cases, accompanied by an evident degree of hypertrophy of the local sentient nerves.

The physical and vital phenomena allied to this disease are fully set forward. The fact, that inflammation may pass through its different stages, without the attendance of asthma, leaves the question still open, as to the cause which associates such an affection with a special condition.

In experiments instituted to determine the capability of the bronchial fibre to diminish the caliber of the tubes, Dr. Black differs from the conclusions arrived at by Volkmann, and negatives the opinion that contraction of the bronchial fibre may be produced by galvanism applied to the vagus nerve; but admits that it is readily produced by the direct application of the galvanic stimulus to the mucous lining of the tubes themselves.

The occurrence of bronchial dilatation is, according to our author, explicable on the unequal process of inflammation in the bronchi, and consequently unequal resistance to the column of air during inspiration, giving rise to the dilatation of those portions of the tube in which the action of the fibres is abolished. The views of Raynaud and Stokes are thereby confirmed, while the varied forms which the affection assumes are adequately explained.

The indications for the treatment of asthma are:—1. To relieve spasm of the bronchial fibres. 2. To withdraw the exciting cause, and to correct any condition of the system which may indirectly contribute to an attack.

The application of microscopical observation to the pathology of the bronchio-pulmonary mucous membrane, constituting a new feature in the diagnosis of chest affections, has induced us to enter thus fully into a review of Dr. Black's volume, which purports to be the first part of a work promising much valuable and important information. Original investigation is its leading characteristic. Our careful study of its

contents has more than ever filled us with admiration of the accuracy of observation and acuteness of reasoning of those writers, who, without the opportunity of such minute investigation, had, on some of the most important particulars, arrived at the same conclusions as the author, thus establishing fully (if there was any doubt on the subject) the truthfulness and value of the means we already possessed.

In those cases especially where there is an apparent identity in the physical and vital phenomena, microscopic investigation must prove invaluable; at the same time the close similarity between morbid products in different diseases, as well as in the various stages of the same disease, will ever render the stethoscope the grand instrument for the general recognition of those affections, to whose literature the present publication must be considered as one of the most important and valuable additions.

In conclusion we may observe, the work is fully illustrated by admirable wood engravings, which cannot fail to convey to the reader correct impressions of the particular conditions detailed.

A Treatise on Diseases of the Heart. By O'B. BELLINGHAM, M. D., F. R. C. S. I., one of the Medical Officers of St. Vincent's Hospital, &c. Dublin: Fannin and Co. 1853. 8vo, pp. 252.

THE physiology and pathology of the heart, from a state of neglect, and its consequence—a degree of ignorance which now seems almost marvellous,—have advanced with a rapid yet even pace during the last thirty or forty years. The works of Lancisi, Senac, and Meckel upon cardiac diseases, which appeared about the middle of the last century, afforded much information upon the morbid changes discoverable in the heart after death, but failed in practical utility from the admitted difficulty of detecting during life the signs of these lesions. In like manner, the researches of Corvisart, Burns, Testa, and Kreysig, in the earlier part of the present century, are valuable as pathological records, but imperfect from the vague enumeration which they give of possible symptoms. It was not till the discovery of percussion and auscultation that a new era commenced from which cardiac disease became susceptible of interpretation; and from thence to the present day, facts and theories mutually illustrative upon this subject have multiplied so fast that a body of circumstantial evidence now exists which in practised hands renders the diagnosis of these affections a

matter comparatively easy, and the error liable to be committed a gradually vanishing quantity.

Next to the publication of Laennec's memorable work, we are probably most indebted for these results to the British Association for the Advancement of Science, as it was from this learned body the impulse was given which led so many eminent individuals in these countries to give their attention, both singly and collectively, to the subject. The reports published by the Dublin and London Committees have commanded attention for the skilfulness of the experiments instituted, and the cautious inductions from them; and very many of the members connected with these examinations have given us most valuable publications on cardiac pathology. Indeed there seems at present scarcely any disease of the heart which has escaped attention; and we feel disposed at times to pronounce its nosology complete until some novel view, the result of original genius and patient research, shows us that we have been too hasty in our conclusions. We need only refer to the recent contributions upon fatty degeneration of the heart, and the connexions lately traced, with such felicitous perspicacity, by Drs. Law, Burrowes, and Kirkes, between cerebral and cardiac diseases. While, therefore, the finger of discovery is still busy in exploring new affections of this organ, the task is not neglected of collecting the stores daily accumulating, and of thus advancing, though in a less ambitious way, our knowledge in this useful field.

We have now before us a work of this character, from the pen of Dr. O'Bryen Bellingham, in which the history and details of cardiac affections are brought down to the information of the present day. His Treatise upon the Diseases of the Heart does not, he tells us in his Preface, appear as an altogether new work, large portions of it having already been published in the form of clinical lectures in some of the weekly periodicals. The author, in compliance with an invitation to publish these lectures in a distinct shape, has carefully revised and expanded them, changing also their appearance from the colloquial to the dissertational form. Some remains of their original intention may be found probably still adhering to them: for instance, the author has inadvertently, we should think, given an introductory chapter on the anatomy of the heart. It is not our wish to criticise the information there afforded, which is an excellent digest of this subject in a small compass; but it presupposes an amount of ignorance in his readers which is not very flattering to their *amour propre*. In addressing a crowd of hospital pupils, it is no doubt prudent to familiarize

their minds with rudimental details; but in a work intended for practitioners we cannot but consider it out of place, and calculated to raise in the mind, when thus put so prominently in the foreground, an opinion of triteness against the work which it does not by any means deserve. If such a practice were to be general, both the writer and reader of works on practical medicine should begin by carrying themselves back to the time when they were *in statu pupillari.*

Having liberated our conscience by this protest, we now proceed, with much pleasure, to afford our readers a glance through Dr. Bellingham's present volume. His Treatise on the Diseases of the Heart consists of two parts: the first of which, now published, is occupied with a description of the healthy heart, its motions and sounds; together with the various symptoms and physical signs furnished by disease. The second part, which has not yet appeared, is appropriated to the organic diseases of the heart, and its functional or inorganic affections. The present volume is divided into nine chapters: the four first contain an examination of the heart in health; the fifth and sixth explain the results of auscultation and percussion of that organ; and the three last embrace the general signs, the secondary symptoms, and the etiology and prognosis of these affections. Upon each of these heads the author has sedulously gleaned, from the productions of numerous authors, a large amount of valuable matter, fairly assigning, as far as he could, *suum cuique,* and filling up the intervals from the store of his own experience, which is not small.

The author, in endeavouring, as a necessary *point de départ,* to establish a standard of comparison with which to compare the size and weight of the diseased heart, has availed himself of the researches of Bizot, adopting his theory that the size of the healthy heart is more proportional to the width of chest than to the stature of the individual. It seems to approach a paradox, that while, according to the same authority, the heart of the male gradually increases in dimensions till death, never undergoing in old age that atrophy which marks senile decline in other parts of the muscular system, the female heart should increase up to the age of fifty, and then gradually decline in size and weight. The reason of this singular difference is not explained, and hence the standard heart must, if these results be well founded, be variously estimated in both sexes. The weight of the average heart can scarcely be regarded as fixed when we find so large a difference as from six to ten ounces assigned by the best authors, scarcely any two being perfectly agreed, and the examples still too few to bring conviction. Still

more do we want fuller information upon the relative thickness of the walls, the capacity of the cavities, and the diameters of the valves in their normal condition; the amount of our present knowledge has, however, been given us by Dr. Bellingham in a very clear and succinct manner.

We pass from the second chapter to the fourth, as it affords us the opportunity of presenting our readers with Dr. Bellingham's views on some of the disputed points of cardiac pathology. We allude to his opinions upon the double impulse and the sounds of the heart. On the first of these points he speaks as follows:—

"If we carefully examine the heart when it is beating vigorously, we shall find that a second, but slighter, impulse is perceptible, which quickly succeeds the other, and on applying the stethoscope we shall find that this second impulse accompanies the second sound of the heart, it appears as if the agency which gives rise to the second sound was capable of communicating a distinct sensation to the hand or stethoscope."

And again:—

"In the healthy heart the second impulse is scarcely felt, unless the organ beats vigorously; when the ventricles are somewhat hypertrophied, and their cavities somewhat dilated, the second impulse becomes better marked; when this has arrived at an extreme degree it becomes very evident, and constitutes then the 'back stroke of the heart,' or the diastolic impulse. This diastolic impulse, except in cases of disease, is never so strong as to be perceptible to the eye, but is readily distinguished when the ear is applied to the stethoscope laid upon the præcordial region. It is perceived at the same part of the chest as the systolic impulse, and is more marked the larger the surface of the heart uncovered by lung, and the stronger the action of the organ."

That in certain cases of cardiac disease a second impulse is perceptible, will, we believe, be admitted by every person who has attended much to this class of affections. This second impulse the late Dr. Hope imagined he was the first to discover, and it received from him the name of the back stroke or diastolic impulse; but, though he has the merit of directing attention to it, and doubtless of finding it out by unaided observation, yet the idea of it, like some other supposed discoveries in auscultation, can be found in Laennec's work. Thus, he says:—"The impulse of the heart is only felt during the systole of the ventricles, or if in some rare cases an analogous phenomenon accompanies the contraction of the auricles, this is easily distinguished from the former. In fact, when the systole of the

auricles (Laennec's supposed cause of the second sound) is attended with any sensible action, this is perceived to have its seat much deeper, and the heart even seems to be receding from the ear. Most commonly the motion consists of a sort of trembling felt deep within the mediastinum. In any case it is very little marked, as compared with the sensation produced by the contraction of the ventricles when these are of a good degree of thickness"[a].

The principal diseased condition of the heart in which the second impulse has been noticed is hypertrophy with dilatation of both ventricles; aneurism of the descending aorta may also produce it: we recollect a striking example from the latter cause, in which the diastole was attended with a much more remarkable impulse both to the eye and ear than the systole, its force being similar to the recoil of a powerful elastic spring as the heart retreated towards the vertebræ; the direction of its action was obliquely from right to left. In this case a large aneurism was found behind the heart.

Cases of disease also occur in which a double or triple impulse is associated with a single beat of the pulse. Some writers, and especially Bouillaud, regard this as a diastolic movement, others consider it a systolic, and arising either from repeated efforts of the ventricles to send on the blood, or from a want of synchronism in the contractions of both. Gendrin has already noticed that, in cases where the descending aorta is abnormally lengthened and consequently the position of the heart more depressed in the thorax, it is indicated by a heaving impulse during the diastole, perceived below the third rib. As to a second impulse produced by the healthy heart, it is a matter of such difficulty to detect that the most accurate observers confess that they are at fault. Skoda absolutely ignores its existence; without, however, discrediting our author's statement that he has felt it, we may on a point of such doubtful evidence be content with the well-known axiom, "de non apparentibus atque non existentibus eadem est ratio."

The numerous theories proposed in explanation of the sounds of the heart have received full and impartial consideration at the hands of the author, and he has classified them according to their supposed causes, viz., impulse, muscular contraction, valvular tension and movements of the blood. The arguments for and against each of these he considers at length. The theory which he adopts himself is, that both sounds can be explained by friction between the blood and the parietes of the orifices of the heart:

[a] Forbes' Laennec, p. 553.

"It seems not unreasonable to refer the first sound to the friction between the blood and the parietes of the arterial orifices during the ventricular systole; the second sound to the friction between the blood and the parietes of the auriculo-ventricular orifices during the ventricular diastole."

In explanation of the first sound, he observes that, "in the rapid passage of the blood from a wider to a narrower area there must be considerable friction between this fluid and the arterial orifices." Its prolonged nature can be explained "by the continued development of sound during the entire period that the blood is passing from the ventricles into the larger arteries," and which is in direct proportion to the slowness of the action of the heart; hence, according to him, the amount of resistance to be overcome, the longer time required, and the larger amount of space over which the blood passes, are elements sufficient to explain the first sound.

The second is determined, in his opinion, by the blood passing in a sudden influx from the auricles through the auriculo-ventricular valves. He adduces Cruveilhier's case of ectopia cordis to show that the blood enters the ventricles with such force that when the organ was grasped with the hand during the ventricular diastole, it was violently and forcibly opened. The mechanism of this full and rapid entrance of the blood he does not fully explain; he discards auricular contraction and active dilatation, so that we may conjecture it to arise from the *a tergo* pressure. He thinks the shortness and suddenness of the second sound can be explained by the rapid relaxation of the fibres of the ventricles, so that the blood comes at once into collision with them.

Several arguments are adduced from pathology by the author in support of his friction theory. One is, that in aneurism springing from the arch of the aorta, a double sound is audible which so closely resembles the double sound of the heart "that the second sound of aneurism in this situation is erroneously supposed by many to be the second sound of the heart transmitted to the aneurismal sac." As, he contends, the aneurismal sounds are indubitably caused by friction between the blood and the parietes of the orifice of the sac, it must follow that such an agency is at least *sufficient* to explain the heart-sounds, without regarding either valvular apparatus or muscular walls, which, on the principle that the more simple an explanation is the more it approaches probability, become unnecessary. He further argues that, as aneurism can generate sounds like the heart-sounds, so they can change them to murmurs identical with the heart-murmurs: thus, similar nor-

mal and abnormal sounds can be produced in both by a similar mechanism. In addition to these general reasons, he adduces particular arguments in favour of his theory of each sound. Thus, any impediment to the transit of the blood through the aortic orifice usually converts the first sound into a murmur; the same may happen when the left ventricle is hypertrophied, though there be no arterial obstruction, by reason of the increased force with which the current is sent onward. In like manner, the first sound becomes a murmur when the viscidity of the blood is diminished, this fluid being propelled with increased velocity; or the contrary, when, from fatty degeneration or softening of structure, the propulsive power is weakened, the first sound will become feeble or inaudible. Lastly, the duration of the sound will be lengthened or curtailed according as the parietes of the ventricles are thickened or attenuated.

That the second sound arises from friction of the blood entering the auriculo-ventricular orifices will appear, he contends, from this sound diminishing in intensity according to the degree of contraction in the mitral opening, and becoming almost inaudible when this is extreme. This is explained by an insufficiency of blood entering the ventricle to produce sound. The same occurs in animals subjected to experiment; the ventricles becoming gorged with blood, and, the entrance of a current adequate to develop sound being prevented, the second sound ceases. The second sound is seldom converted into a murmur, because there is nothing to *increase* the force with which the blood enters the ventricles from the auricles, hypertrophy of the latter being very rare. When a murmur is heard at the period of the second sound, it arises from aortic regurgitation, the greater loudness of which masks the second sound, which, though feeble, will still be found to exist, for the backward current through the aortic valve will lessen the quantity of blood entering by the mitral, and thus diminish the sound.

We have thus given a *resumé* of the principal reasons put forward by Dr. Bellingham in defence of the friction theory. They are very plausible, and are supported with much ingenuity, but, like all the other modes of explanation, they are open to objection. First, as to the capability of aneurism springing from the arch of the aorta to develop sounds identical with or nearly allied to those of the heart, it is argued that the double sound heard over the aneurism is not connected with the heart-sounds, because it is not only constantly louder than the latter, but also varies, murmurs being heard over the

sac, while the sounds over the heart remain unchanged, or the reverse. It must be admitted that there are strong reasons in favour of the independent origin of the aneurismal sounds, but we do not think them so indisputable as to justify Dr. Bellingham in making them the basis of a theory. It may be naturally asked, why, if aneurisms be able to generate double sounds *per se* in the thorax, distinct from the heart, they should only be able to generate a single sound in the abdomen? No doubt various attempts have been made to solve this mystery, some, with Gendrin, contending that a second sound is always audible in sacculated abdominal aneurism, contrary to the evidence of most observers; others, with Dr. Lyons, offering the very ingenious but scarcely tenable explanation, that the arterial systole *follows* the ventricular in the thorax so as to cause a double sound, but in the abdomen acquires by some means an accelerated pace, which enables it to overtake the slower course of the ventricular, and thus by a simultaneous effort produce a single sound. The theory of regurgitation into the sac which Dr. Bellingham employs to explain the second sound of thoracic aneurism, and which he assumes will be absent in abdominal, is still less probable. The transmission of the second sound from the heart is not necessarily confuted by the exaggeration of sound heard over the sac; we know that in solidification of the lungs, the sounds of the heart are augmented and extended, so when the density of the aorta is increased by deposits of fibrin, it is placed in a favourable position for multiplying sound.

As to the friction of the blood affording a satisfactory exposition of the first sound, there are many arguments in its favour, and we are ready to grant that Dr. Bellingham has made out a strong case for his opinion, though, contrary to the usual doctrine, he recognises but one source of sound. Still it does not explain some phenomena. For example, when the mitral valve allows regurgitation, a distinct first sound is rarely heard over the left ventricle, but is replaced by a murmur, which seems to show that the auriculo-ventricular valves have some effect in contributing to the first sound. Again, if Dr. Williams' experiments be well founded (and they have lately been questioned in our pages by Dr. Leared in his excellent paper), the passage of the blood is not a necessary element of the sound, as it continued to be heard when no blood passed through the ventricle. It might also be anticipated that in a hypertrophied left ventricle, without arterial obstruction, in which the blood is sent on with increased impetus, the sound should always increase in loudness and clearness, whereas

the contrary is frequently the case. Further, it admits of doubt whether a diminution of the viscidity of the blood will impart such an augmented velocity as necessarily to produce a murmur during its exit through the aortic orifice. That murmurs do occur must be admitted, but cases apparently similar exist when they are absent. "It is not true," says Skoda, "that a watery state of the blood is a cause of murmurs in the heart. I have many times abstracted very watery blood from patients in whom no murmurs existed." It is, as he observes, but a hypothesis.

The author's explanation of the second sound has less foundation. Independent of the support from carefully instituted experiments which the closure of the semilunar valves and the recoil of the blood against them have received as the cause of the second sound, objections can be made to the hypothesis of Dr. Bellingham: for instance, there is reason to conclude that the blood does not enter the ventricles instantaneously after the systole, but gradually, and with a motion too gentle to cause sound; and it is admitted that the auricular contraction which completes the repletion of the ventricle is too feeble to produce sound, besides, the sound, if arising from this cause, should be continued and not abrupt. Arguments against this theory may also be adduced from the greater distinctness of the second sound perceived in the course of the aorta than at the apex of the heart, which can scarcely be explained on this hypothesis: but we must resist the temptation to prosecute this subject any further.

The author's remarks on the abnormal impulse are valuable, as it is a very important matter to draw a line of contradistinction between the impulse produced by hypertrophy and that fictitious condition which occurs in aggravated dyspepsia and some nervous habits, and which causes such alarm to the patient, and not unfrequently to the young practitioner. Skoda's division of the impulse into three degrees is important to bear in mind,—first, that which neither raises the parietes nor shakes the head of the auscultator; secondly, that which does not raise up the thoracic walls, but imparts a strong concussion to the head of the auscultator; and thirdly, that which raises both. We must regret, however, the imperfection of these rules in accurately marking disease. Thus, it is well known that a heart may be hypertrophied, yet produce little impulse, and that an impulse which will impart a smart shock to the head of the auscultator may be the result of merely increased action, as well as hypertrophy. Other data, however, such as

the extent of dulness on percussion, may serve to clear up the diagnosis.

We find some interesting observations upon *frémissement cataire*, where the morbid conditions in which this sign is perceptible are enumerated. The author arrives at the general conclusion, that in every case in which it is felt, whether in the heart or the arteries, the cavity in the vessel is in an *unfilled* state:—"I consider this unfilled state of the vessels, combined with a certain amount of force and velocity of the current of blood, to be the immediate cause of this phenomenon, the thrill or vibration communicated to the hand being more marked when the lining membrane of the part is rough or irregular from disease."

His chapter on abnormal murmurs will amply repay perusal, though of course they are explained according to his theory of the heart-sounds.

In his observations on venous murmurs he has proved that the continuous sounds heard in the neck are due to the motions of the blood chiefly in the internal jugular vein, a theory which, except by the French, is now almost universally allowed. The intermittent sounds heard in the same position are carefully to be distinguished from the above, and are due to the carotid arteries. Dr. Bellingham has shown, that while a certain degree of pressure by the stethoscope is necessary to produce the venous murmur in a tense state of the fascia, a greater degree will obliterate it, which would not be the case if it arose from the arteries.

Among the general signs of cardiac disease described by the author, we find the twofold appearance of the countenance defined, the bloated and purple aspect being as peculiar to one set of cases as the pallid is to another. Prominence of the eye-balls is also alluded to by him, though he lays less stress on it than other writers do, especially the late Dr. Graves. Angina pectoris is regarded by him, not as a distinct disease, but rather as a symptom, and he looks for its cause "in a sudden impediment to the coronary circulation, particularly to the return of the blood by the coronary veins." His remarks on the subject of polypoid concretions deserve consideration, though he differs from Rokitanski in disbelieving that these bodies can ever be supported by blood passing through the organ. In his last chapter, on the progress of cardiac disease and its duration, interesting remarks will be found on the mode of death in heart affections, a subject which has not yet been sufficiently studied, and which Dr. Corrigan, in his valuable

paper on patency of the aortic valves, has handled with his usual ability.

Before we close the pages of Dr. Bellingham's excellent work, we wish to notice one point which we hope to see corrected in his second part, as we think it takes from its value, especially as regards the junior members of the profession, and that is, the *incuria* with which the references are cited. Dr. Bellingham, in a spirit of most praiseworthy fairness, desires to give his authority, when he can, for each salient point; but it is done in so loose a manner as to be almost useless, or at least very troublesome to persons who may wish to refer to the author. He seldom or never gives the page, sometimes not even the volume. Perhaps if the names of his authorities were less frequently introduced into the text it might be better, as the frequent repetition of the phrase, "Dr. —— observes," is almost a blemish. The recapitulations of the contents of each section at its close are important, still they may be carried too far. We feel sure that it is only necessary to draw attention to these minor details to have them corrected.

We desire, in conclusion, to record our fullest approbation of this first part of Dr. Bellingham's work, as a most valuable contribution to cardiac pathology. It contains an excellent synopsis of the signs and symptoms of heart disease: the causes of each carefully explained and detailed in a most intelligible manner. We hope to find him soon again in that field in which so many of the Dublin school have won their laurels; and we venture to augur that, if the succeeding portion be equal to the first, his Treatise on the Diseases of the Heart will not linger on the shelves of his publishers.

On the Decline of Life in Health and Disease, being an Attempt to investigate the Causes of Longevity, and the best Means of Attaining a Healthful Old Age. By BARNARD VAN OVEN, M.D., &c. London: Churchill. 1853. 8vo, pp. 300.

ALTHOUGH we nowhere find it expressly stated that this work is intended to be a merely popular one, yet, in justice to its author, we must suppose such to have been his design. For, after a careful perusal of its contents, we have failed to discover therein any new or original observations, either as to the prophylaxis, pathology, or treatment of disease at any stage of life. The physiological descriptions, moreover, are superficial and purely elementary; and the dietetic rules such as every tyro in medicine is supposed to be acquainted with. The book

is not without some redeeming features, however. It puts forward nothing palpably unsound in theory, or bad in practice; and in the form of an Appendix is subjoined a Table showing the name, social condition, country, year of death, and age, of about two thousand persons who lived for a hundred years or upwards. More than four thousand other examples of a similar longevity are also referred to, but not detailed. The sources from which these numerous instances have been derived are of course very various, but, generally speaking, deserving of credit. These Tables, which occupy about one-third of the volume, evince no small amount of research, and, as far as they go, are very interesting; but we much doubt whether the history to be found accompanying the individual cases is of such a nature, or sufficiently exact, as to supply safe data for any useful or trustworthy general conclusions.

Besides a Preface (from which we learn that Dr. Van Oven has been thirty-five years in practice), and an Introduction, the work consists of four parts. Part I. is "on the decline of life in health," and is divided into three chapters, which give a very cursory view of the leading phenomena and changes that take place in the human body, during the periods of growth, maturity, and decline.

Part II. is "on longevity." The second chapter of this section is devoted to an examination of "the causes of longevity," but the author's investigations upon this highly important subject do not seem to have elicited any new facts, nor to have suggested any new views. The general conclusions at which he has arrived are merely confirmatory of the universally received opinions of the profession on this point at the present day:—

> "Rejecting, then, climate, social position, and place of residence, we must seek for the causes of longevity in what concerns the individual, in his original stamina, in the healthfulness of the parents from whom he sprung, in his habits, avocations, and mode of life; in his immunity from the attacks of disease, in equanimity of temper, and freedom from great and frequent excitement."

A perusal of these causes of long life cannot be very encouraging to any one desirous of earning a place in Dr. Van Oven's list of centenarians, seeing that some of the most influential (healthfulness of parents, original stamina, &c.) are quite beyond his own control. Celibacy does not seem conducive to longevity, as we are told by the author that few of those who have attained to a great age passed their lives in this unnatural state. This is certainly an interesting and important fact, view

it in what light we may, whether moral or physiological; and it is one that Miss Martineau and the Malthusians would do well to become acquainted with. It also plainly teaches us that in this, as in every other matter affecting man's happiness, God's arrangements cannot be improved upon by human device or wisdom. Hufeland, in his "Die Kunst das menschliche Leben zu verlängern," makes a similar statement to the above, relative to eunuchs, and says he knew of no instance of their having attained to a remarkably great age.

The subject of Chapter III. is "the mode of attaining old age," and conveys in a concise but agreeable manner, some of the general rules and precautions which a proper regard for health demands, in respect to sleep, diet, exercise, study, &c. &c., and which are laid down by all writers upon dietetics and regimen. It would be quite needless and unprofitable, therefore, to follow our author through these pages of his book. We are forced to acknowledge having felt a considerable degree of disappointment on reading this chapter. Its title would naturally lead one to regard it as *the* most important in the book, and accordingly we hoped to have found in it something more than a repetition of those long-established sanitary axioms which have become so familiar to us all by the writings of Paris, Abernethy, Hufeland, W. Philip, Parker, Smith, Pariset, Johnson, Day, &c., amongst medical writers; and Cornaro, Combe, Sir F. Head, &c., of popular authors.

Part III. treats of the decline of life in disease, and the author's object here is best conveyed in his own language:—

> "It is not my intention to describe fully the diseases of age, or to point out their medical treatment. All this has been done by abler pens than mine; my object is neither to dispense with the physician nor with medicine. I wish to teach the aged invalid what he may well do for his own safety and comfort to avoid the attacks of disease, and when it does come to mitigate its evils and prevent its baneful consequence; and all this not to supersede, but aid, those really curative means which the skill and ability of his physician can alone suggest."

The twelve chapters following are appropriated to the fulfilment of this purpose; and most of the diseases incident to advanced life are passed in rapid review. His remarks chiefly, but not exclusively, refer to the preventive and palliative treatment of the various senile affections to which reference is made. Designed, as they are, more for patients than practitioners, they can hardly interest (not to say instruct) the latter; and we much fear whether they will attract the attention

they deserve even from the former. The subjoined piece of sound advice, particularly addressed to persons suffering under cardiac disease, would, if always acted on, render these twelve chapters quite superfluous:—

"At the very commencement of any derangement of health apply at once to those on whose judgment you can rely, and implicitly follow the course recommended by them."

The fourth and last part of the volume is the Appendix, of which we have already had occasion to speak. In concluding this short notice, we cannot forbear expressing our regret that Dr. Van Oven, who seems to have been actuated with the laudable desire of doing something in the cause of suffering humanity, did not give the result of his observations and lengthened experience in some really valuable form. Semi-popular books of this kind are almost wholly useless in the diffusion of knowledge, being seldom or ever read by the public for whose enlightenment they are chiefly intended; whilst they possess nothing that can give them a just claim on the attention of professional men. Many works of this class have issued from the press within the last few years, and to nearly all of them this remark applies with no less force than to the one now under review. Some of the publications here alluded to received a passing notice in our pages, and we did not scruple to pronounce on each the same condemnation we now do on the whole class.

On a New Method of Managing Fractures. From the Address in Surgery, delivered at the Twentieth Anniversary Meeting of the Provincial Medical and Surgical Association, held at Oxford. By J. T. Hester, F.R.C.S., Surgeon to the Radcliffe Infirmary, Oxford. London: Churchill. 1853. Pamphlet, pp. 11.

The treatment of fractures has ever been viewed by surgeons as particularly worthy of attention. In many instances of disease and injury the ignorance and carelessness of the practitioner are screened, and evil consequences averted by the kindly efforts of nature; but in the case of the simplest broken bone the proper application of art is essential, otherwise deformity, impairment of motion, and other unpleasant results are inevitable. Nature can only cement the broken fragments, art must do the rest that is required. Many mistakes and defects in treatment are frequently overlooked, and remain un-

known even to the individual himself; but an ill-set fracture is an enduring reproach recorded in the most palpable characters against the surgeon's skill. He who has witnessed the indignation of a young lady whose neck has been rendered unsightly by a badly set fracture of the clavicle; or the wounded vanity of the man of fashion, the symmetry of whose limbs has been spoiled by a fracture of the leg; or, again, the vexation of one whose livelihood depends upon bodily activity, at lameness resulting from the same cause,—can well appreciate the necessity of attending to the treatment of fractures, and the value of an efficient apparatus for their management.

Accordingly, many have been the plans proposed of doing up fractured limbs, and numerous the apparatuses invented for carrying out the purpose, but that the latter are for the most part inefficient is sufficiently proved by the number that are constantly being added. The great cause of the inefficiency of almost all the different forms of apparatus in use is obviously attributable to the not bearing in mind every particular in constructing them, so as to make them fulfil all the indications required. Some apparatuses are adapted merely for maintaining extension, which many of them accomplish perfectly; but how frequently does an extension-splint cause increase of displacement in other directions! Others are devised entirely for counteracting lateral displacement without effecting the least extension, thus one only of the indications required is fulfilled. It is evident that apparatus is the most perfect, and will prove the most efficient, which is able to fulfil the most indications: to carry out this, however, is the great difficulty.

The object of the little pamphlet before us is to explain some forms of apparatus which its author has invented for different fractures, particularly for those of the thigh. Now whatever may be the mechanical skill displayed in the construction of these, certain it is that their inventor has not shown clearly where their peculiar advantages lie, nor explained at all satisfactorily the manner in which they act, and how they can be rendered applicable to fractures differing in situation and other respects. It may be that our dulness is such as to prevent our understanding clearly, and appreciating fully, what is easily comprehensible to others, and obviously of value; nevertheless we cannot but think that if Mr. Hester wished to do ample justice to his inventions, and to let the profession benefit thereby, he ought to have described them more graphically and demonstrated more fully the advantages they possess. To invent is one thing, to render the thing invented applicable to

a given purpose is another,—the former is comparatively easy, the latter involves the difficulty.

Mr. Hester's different forms of apparatus may be good specimens of mechanical art, but their suitableness to the purpose for which they have been designed is by no means obvious, especially in the absence of satisfactory demonstration. The apparatus upon which he principally dwells is one for fracture of the thigh, the discovery of which, it seems, he came to while making observations upon Mr. Earle's bed. The great defect he saw in the latter was the impossibility of keeping the limb fixed, and preventing it from following the movements of the body according as the back was elevated or depressed. He says :—

> "Finding this to be the case, I considered that the best mode of treating fractures of the thigh would be to place the subjects of them on such a bed as would admit of the back being elevated or depressed, without at all interfering with the relative position of the trunk and thigh."

The bed invented by himself Mr. Hester considers as chiefly applicable to fractures of the "neck of the thigh." He repudiates, with energy of language, the idea of considering any given case of this fracture as incurable, particularly "as no one can say with absolute certainty whether the fracture is within or without the capsule;" neither does he think "that the impossibility of union, when it is intra-capsular, is by any means established."

Accordingly, he is of opinion that union may take place if absolute rest can be maintained for a great length of time, and therefore it is that he views his bed as peculiarly adapted to such fracture, since a patient can lie upon it for the requisite period with comfort, the tediousness of the long confinement being lightened by his being able to sit up and lie down without danger. We cannot, however, agree with Mr. Hester, in the first place, that there is so much uncertainty in ascertaining whether a fracture of the neck of the femur be intra- or extra-capsular. No doubt we cannot arrive at that knowledge in any case with the certainty of a mathematical demonstration, but in what instance almost in surgery can diagnosis admit of such accuracy as this? In a large number of cases of fracture of the neck of the thigh-bone, doubtless much difficulty must be experienced in detecting its exact nature, but many will be met with in which the surgeon will feel no hesitation in arriving at a diagnosis upon which he may rely with as much

certainty as can be brought to bear in almost any instance. The age of the individual, the degree and direction of the force which has broken the bone, the amount of shortening of the limb, the presence or absence of contusion in the vicinity of the hip, &c. &c., are circumstances which, though far from proving to a demonstration the exact nature of the fracture, afford presumption sufficiently strong upon which to found a correct diagnosis.

As to the possibility of osseous union of the fragments when the fracture is intra-capsular no one can entertain a doubt; and it has now been pretty well established that if perfect coaptation could be maintained for a long period, union would in general occur in this fracture as it does in any other. To maintain this coaptation, however, is the great difficulty, and certainly we cannot see how this much to be desired object can be *insured* by the apparatus of Mr. Hester. The other inventions of this surgeon are for fractures of the leg, humerus, and fore-arm, and drawings of them are given in the pamphlet; but as his very primitively executed wood-cuts are not accompanied by any particular description, nor any cases in which they have been tried recorded, we consider criticism upon them uncalled for.

A Manual of Materia Medica and Therapeutics; including the Preparations of the Pharmacopœias of London, Edinburgh, and Dublin; with many New Medicines. By J. FORBES ROYLE, M. D., F. R. S., &c. Second Edition. London: Churchill, 1853. Fcap. 8vo, pp. 801.

AMONG the many valuable works on Materia Medica with which English medical literature abounds, the Manual of Dr. Royle deservedly holds a high position for several excellencies peculiarly its own, and we are therefore much gratified to find that these have been duly appreciated by the profession, as is now shown by the demand for a second edition. From the great opportunities which the learned author enjoyed, while resident in India, of becoming practically acquainted with the numerous valuable drugs derived from the British Possessions there, his work is the best authority on their origin, natural history, and physical properties; and, from the fame which he has so justly acquired as an eminent botanist, the department of the subject connected with or dependent on botanical research is treated in the volume before us with, we must say, more care and attention than by any other author. Indeed, the only

point in which Dr. Royle's Materia Medica is at all deficient, is in the account given of the action and uses of medicines; and this would seem to arise chiefly from an anxiety to keep his work within as narrow limits as possible, so as to make it correspond with the other students' manuals issued by the same publisher, and which have gained so extended a celebrity as text-books. In his Preface the author expresses his regret that his own avocations prevented him from assisting in the completion of the last part of the third edition of the late Dr. Pereira's Materia Medica; and in this expression of feeling we fully participate, for we do not know any other English writer on the subject more competent than Dr. Royle to conclude that *magnum opus* in a way worthy of the illustrious deceased. We regret also that, from the same cause, he was compelled to require the assistance of Mr. F. W. Headland in the bringing out of his own book, as, in a work on Materia Medica in especial, every statement, we might almost say every line, should receive the careful attention of the author himself.

On the whole, however, we must record our fullest approbation of Dr. Royle's second edition, as constituting not only a handbook for the student, but a work of reference for the practitioner; and we cordially concur in the author's "thanks to the publisher, as well as the printers, for the elegant and clear typography, and Mr. Bagg for the skill and taste he has displayed in the woodcuts."

PART III.

MEDICAL MISCELLANY.

TRANSACTIONS OF THE ASSOCIATION OF THE FELLOWS AND LICENTIATES OF THE KING AND QUEEN'S COLLEGE OF PHYSICIANS IN IRELAND.

SESSION 1852–3.

FIFTH MEETING, MARCH 2ND, 1853.

THE Secretary read a paper communicated by Dr. Gason, of Pisa (Licentiate of the College), containing some physiological investigations by Dr. Malaguti, on the intermediary nerve between the portio dura and portio mollis[a].

PROFESSOR MONTGOMERY read an essay on double monsters, illustrated by a very remarkable case[b].

DR. CHURCHILL read a paper on the rhythm of the fœtal and infantile heart[c].

SIXTH MEETING, APRIL 6TH, 1853.

DR. LEES described a case of medullary cancer of the liver undergoing the suppurative process[d].

PROFESSOR OSBORNE, after having briefly described two cases of long-protracted disease of the right lung, with cavities at the apex, hemoptysis, and most of the symptoms of tubercular phthisis, but yet affording sufficient diagnostic marks of being really cases of cir-

[a] Published in the Dublin Medical Press, vol. xxix. p. 373.
[b] Published at length in the Dublin Quarterly Journal of Medical Science, vol. xv. p. 257.
[c] Published in the Dublin Quarterly Journal of Medical Science, vol. xv. p. 487.
[d] Published at length in the Dublin Quarterly Journal of Medical Science, vol. xvi. p. 40.

rhosis, as the sequel proved, requested the members present to state their views as to the most available means of establishing the diagnosis between tubercular phthisis and cirrhosis. Hereupon an interesting discussion ensued, in which several important cases and observations were elicited.

Dr. Ringland gave the following notice of a case which he thought possessed one point of special interest, as it proved the efficient agency of a single medicine; for, as it was treated throughout by but one remedial agent, there was not any difficulty in coming to a conclusion as to the specific drug which produced the beneficial effect, whereas much doubt upon this point must of necessity exist wherever a variety of medicines is employed either consecutively or in combination.

Early in April, 1852, he was called to see a young lady, a governess in a large public school, within a few miles of Dublin. Owing to the nature of the school, her daily avocations were of a most active and fatiguing character, requiring her during school-hours to be constantly on foot; but it had been remarked by the heads of the establishment, about eighteen months prior to the date already specified, that she had become languid and totally unable to move about as before, being obliged, in consequence of debility, to occupy a chair at all times during the day. At this time menstruation, which had previously appeared at the customary periods, had become irregular as regarded time, and deficient in quantity, whilst a sanguineous discharge, at first in small quantity, and at long intervals, came from the intestines. In consequence of these symptoms she consulted the late Mr. Collis, but, despite the judicious treatment employed by him, the menses had diminished, and, finally, had altogether disappeared, while the discharge of blood from the alimentary canal had rapidly increased in quantity, and the periodic intervals had become less and less.

When Dr. Ringland saw her, which was in consequence of the death of the lamented gentleman previously named, he found her in bed, lying on her back, quite collected, but perfectly blanched, and almost pulseless; countenance sunk; tongue protruded with difficulty and with a tremulous motion; extremities cold; and a cold clammy sweat over the whole body, but especially on the head and neck. Intense vomiting every few minutes added to the urgency of the other symptoms. On inquiry he learned that, prior to his being sent for, she had lost, as far as could be conjectured, at least a pint of blood from the bowels, and that a quantity but little less had been similarly discharged every ten or twelve days during several previous weeks. The symptoms were so urgent, especially the vomiting and general prostration, and the distance from any apothecary so considerable, that he at once gave her four drops of creasote, the only suitable remedy at hand, dissolved in a teaspoonful of brandy, and at short intervals small quantities of brandy and cold water. At the same time warmth was applied to the extremities, and

cloths saturated in cold vinegar and water to the perineum and nates. He was much pleased to find that the creasote had remained upon the stomach; also that, after two hours, the hemorrhage from the intestines had almost ceased; that the pulse, though still shabby, had slightly improved; and that there was a slight return of heat to the extremities. Encouraged by the result, he, after a further delay of two hours, administered four drops more of the creasote, and, prior to leaving for town at 11 o'clock, P.M., he ordered one-half that quantity to be repeated every fourth hour; he also directed that one table-spoonful of brandy and cold water, and two table-spoonfuls of cold chicken broth, should be given alternately every half-hour.

On the following morning he found that there had been no return of the vomiting, and that the hemorrhage had entirely ceased; her countenance was much improved; the heat of the body natural; and her pulse 120, but soft. He then examined the state of the rectum, conceiving that there might be some local disease existing there which could account for her condition, but he found it perfectly healthy. The creasote was repeated in two-drop doses every sixth hour, and the brandy and cold water and the cold chicken broth continued.

Some days afterwards she was put on bark and the mineral acids, and subsequently on iron. Under this treatment she rapidly amended, and was able to leave her bed on the fourteenth day from the attack, and to resume her duties in the school in about two months. There was no return of hemorrhage from the intestinal canal until after the lapse of about three months, when she had again a slight attack; and in about three months subsequently, there was a second recurrence, but since then she has not had any return of it. On both these occasions the creasote was again had recourse to, and with equal benefit. Within the last six months menstruation has re-appeared two or three times, with great irregularity, however, and in but small quantity. In a letter from her, written within the last few days, she states that her health is in all respects much improved.

Professor Osborne mentioned that he had been lately led to use tannic acid for the destruction of tape-worm by several considerations, and especially from its action on gelatine, as well as on albumen. Having ascertained in the usual way the presence both of gelatine and albumen in these parasites, it is to be inferred from analogy that the former is in their integuments, and if so, that in tannic acid we have the desideratum of an agent acting chemically on the worm, but not irritating the stomach or bowels of the patient, and, moreover, capable of being retained long enough to produce its full effect. He stated that in the cases of two patients whom he had under this treatment, the appearance of the ejecta indicated that the worms had suffered from a chemical irritant, being in some instances curled and contracted, and in others friable and broken down, when expelled by a purgative. However, not wishing to fall into the

common temptation of overvaluing a remedy because it was of his own devising, he refrained from any further observations until he should have witnessed its effects on a sufficient number of cases, when he hoped to be able to lay the results before the Association.

Seventh Meeting, May 4th, 1853.

Dr. M'Clintock communicated the general results of a series of observations upon infants under a week old, made with a view to ascertain the average frequency of the pulse at this period of life. He commenced by stating that it was through the very great kindness of Dr. Shekleton, the Master of the Lying-in Hospital, and of Dr. Sinclair, one of his assistants, that he was enabled to bring these facts before the Association, as the former had permitted, and the latter had assisted him, to make a very large proportion of the examinations in the wards of that institution. The total number of these examinations was considerably above 200, made upon 140 children. These were all apparently healthy infants, and, as already stated, were under a week old. The same mode of ascertaining the rate of the pulse was pursued in all, viz., stethoscopic examination of the heart. In doing this it is very seldom necessary to strip the child; and the cardiac sounds can be detected as well on the posterior as the anterior part of the chest,—so that whether the infant be lying on its face, right side, or back, the desired object can very generally be obtained. With a view to remove, if possible, all source of error, these examinations were conducted under different circumstances, as regarded the subjects of them, viz.—first, when asleep; second, when awake, but quiescent; and third, when crying, or excited; and a distinct record was kept of each of these separate observations. The results were as follows:—

Class I.—Of 84 healthy infants, of both sexes, examined during natural sleep, the pulse was:—

In	2	instances	under	90	
—	5	„	between	90	and 100
—	31	„	„	100	„ 110
—	17	„	„	110	„ 120
—	22	„	„	120	„ 130
—	4	„	„	130	„ 140
—	3	„	„	140	„ 150

The mean rate of pulsation of all the instances belonging to this class is 109. This figure Dr. M'Clintock believes to be rather above the truth. For in rigid exactness some of the observations in this class ought not to have been included, as the children, though asleep, were more or less disturbed, and the circulation consequently excited. The experiments of Billard, also (alluded to further on), so far as they go, strengthen the belief of this being too high an average.

Class II. includes 51 different infants auscultated when awake,

but in a calm and tranquil state. Of these the rate of the pulse was:—

In	2	instances	below	100		
—	8	„	between	100	and	110
—	15	„	„	110	„	120
—	15	„	„	120	„	130
—	7	„	„	130	„	140
—	4	„	„	140	„	150

The mean of all these observations is 118, thus showing a rise of *nine* beats in the minute above the rate of pulse as observed during sleep. It must be stated, however, that this can only be regarded as an approximation to the truth, since the same qualification is necessary here that was applied to the average of the former class. Moreover, this second class embraces also a less extended range of cases; the cause of which is simply the difficulty of getting children so very young to remain perfectly quiet during the necessary examination of the heart.

Class III. comprises 74 children who were auscultated whilst *crying*, which may justly be considered as the highest state of physical excitement in a healthy infant. The greatest frequency of pulse amongst these children was 180, and this was in an infant just born and separated from the mother (an hour afterwards, when asleep, its pulse was only 104). The slowest pulse in this range was 120, whilst the mean deduced from the entire number is 146; thereby showing a rise of 28 over the second class, and of 37 over the first class.

In the course of this investigation (which Dr. M'Clintock intends prosecuting much farther, as he considers it to be far from complete), some interesting, though not unexpected facts, were observed. Thus there would seem to be a very striking accordance between the temperament and circulation of the child. Cross, irritable infants, who evinced a propensity to cry on the most trivial occasions, invariably had a pulse above the average rapidity; whilst the examples of, comparatively speaking, slow pulse were all placid, contented children, that gave little trouble, and whose equanimity and good humour were not easily disturbed. Again, it was repeatedly the subject of remark what apparently slight causes acted upon the pulse, suddenly and notably quickening its beats. This was found to be the case not only when the child was awake, but also during slumber. The slightest disturbance of the body, even the movement of a limb, a passing smile, or contortion, was almost instantaneously followed by a temporary increase in the rapidity of the heart's pulsations. Such a result is only what might *à priori* have been looked for, being strictly accordant with the known exquisite sensibility of the nervous system at this initial stage of life. Careful and repeated observations on a very large number of cases have convinced the author that this very excitable state of the heart exists also *before birth*, and that the movements of the fœtus

in utero have the effect of transitorily increasing the frequency of the cardiac sounds, so much as 5, 6, or even 7 beats in the quarter minute. One consequence of this extreme sensibility of the heart and vascular system is, an apparent irregularity of the pulse,—its rate of velocity seldom remaining the same for many consecutive minutes. Another effect is, that it presents a considerable difficulty to forming a correct estimate of the normal rate of the circulation in very young children. It is highly probable that if this source of fallacy could be entirely avoided, we should find that the difference between the frequency of the pulse in the adult and the infant is by no means so much as is laid down by authors, and believed by practitioners. Billard's researches in connexion with this subject have already been alluded to; as he appears to be the only author who has made any statistical investigation on the point in question, his general results are here quoted. In *forty* infants, aged from one to six days, and in apparently good health, he found the pulse below 80 in *eighteen* instances; in *two* it was 86; in *one* 89; in *four* it was 100; in *ten* from 110 to 125; in *one* it was 130; in *two* 145; in *two* more 150; and in *one* so high as 180. These figures yield a mean of about 100, which, it will be remarked, is considerably below the lowest average given by Dr. M'Clintock. It is to be regretted that Billard does not state under what circumstances his examinations of the children were made, since this, as Dr. M'Clintock has endeavoured to show, exercises a material influence upon the numerical results.

There is one general conclusion which may be safely drawn from the above facts, and it is this, that the frequency of the circulation is very considerably *less* after birth, than it is during intra-uterine life. What the mean rate of frequency of the fœtal pulse is at the full term of gestation has never, it is believed, been fixed by statistical data; but, from a large number of recorded observations now before the author, as well as from the impression which an extended experience in obstetric auscultation has forced upon his mind, he would lay down 132 as about the fair average.

Dr. Law read the particulars of a case of spinal irritation, in which large doses of morphia had been administered.

Dr. Lees detailed the particulars of a case of chronic vomiting, in which enormous quantities of a highly acid, barm-like fluid were ejected from the stomach, and which presented under the microscope numerous specimens of sarcini. The urine passed during the same period was alkaline, and deposited a copious precipitate of phosphate of lime and triple phosphate.

Dr. H. Kennedy read a paper on slow pulse in fever[a].

[a] Published in the Dublin Quarterly Journal of Medical Science, vol. xvi. p. 299.

Eighth Meeting, June 1st, 1853.

Dr. Frazer read the following abstract of a case of rheumatic ophthalmitis:—In the spring of 1850 I was sent for, about 8 A.M., to visit a poor fellow, twenty-two years of age, who was suddenly attacked on the previous morning with acute rheumatism in his ankles and knees, attended with vomiting. When I saw him, his face was flushed and dusky, his mind inclined to wander, his voice hoarse and laryngeal, both his ankles, his right knee, right great toe, and one wrist very painful, swollen, and pinkish; his pulse was weak, varying from 130 to 140; tongue densely furred, and rather dry; surface warm and sweating; the bowels over free, having acted three times during the night, and he was still rejecting everything from his stomach. About a month previously he had an attack of delirium tremens, complicated with pleuropneumonia, at the termination of which I saw him for the chest affection, when he had the usual symptoms of pleuritic effusion, with pain in the side and feverishness. Treatment removed the effusion and distress of breathing, but he refused further care, and resumed his studies and excesses, although fully one-third of the right lung was more or less solid. When examined now, the pneumonia was gradually found resolving. He had taken punch to excess on the night previous to the rheumatic attack commencing, and on the day of its occurrence used freely both wine and porter, and early in the morning, before sending for me, had been drinking port wine, although he was ejecting it as he took it. I directed pills with colchicum and small doses of opium, of which he took only one, and soon after left his bed, and was found on the floor insensible, frothing from his mouth and working in convulsions, his face and hands being livid. He was removed to bed, and shortly had another severe epileptic attack. I saw him two hours from this time, when he was drowsy, and wandered much when spoken to, saying he had slept well and got all right. Saline draughts were substituted for the pills. During the day he was greatly excited, at one time leaving his bed and bolting his attendants out of the room.

2nd. Next day his stomach was easier, the bowels had acted three times, and he had perspired much; the pains in his lower limbs were less, but his wrists, right elbow, a bursa on the right fore-arm, and the left shoulder were swollen and painful; he got small doses of colchicum and magnesia, and was again rather delirious in the course of the day.

3rd. Last night he sweated so profusely as to wet four shirts; the pains in his shoulders were severe, and he had still a tendency to romance, and was anxious to get out of bed; his pulse had fallen to 100, his tongue was cleaning, and his voice was laryngeal. Towards evening herpes appeared extensively over his lips and chin, but his mind continued disturbed, and he was most anxious to obtain porter. Being concerned about him, I did not leave his bedside until near twelve that night, when he had fallen asleep.

4th. He, however, woke up at 1 A.M., with a feeling of sand in his left eye. This increased in uneasiness until it amounted to severe pain in the eye and temple, and his vision became very dim. When I saw him at 7, A.M., I found that he had just applied some leeches to his left temple, which he had insisted on his attendants obtaining. The conjunctiva had a few wandering red vessels over it; there was very little sclerotic redness; the anterior chamber was quite hazy; the pupil oval, contracted, and drawn towards the lower and inner angle of the eye; the iris was of a dusky yellowish brown (being naturally light brown), and considerably thickened and uneven on its surface; his vision was very imperfect, so that he was hardly able to see outlines or to distinguish faces. His mind was less flighty; he had perspired, although not so freely as on the previous night, but his right elbow and left shoulder continued very painful. Mercurials were exhibited with a little colchicum, and stupes and belladonna employed externally. At 10, P.M., that evening, the pupil was dilating, though most irregularly, under the influence of the belladonna; he complained greatly of pain in his eye-ball, and vision was nearly destroyed; he could hardly distinguish light from darkness, or perceive the flame of a candle; the fluid of the anterior chamber appeared opaque, and the iris much thickened.

5th. Rested well during the night, after stuping his eye; its general appearance was worse this morning; there was more conjunctival vascularity, and the conjunctiva was elevated by a yellow chemosis, as if lymphy exudation had occurred between it and the sclerotic; shreds of white coagulated lymph floated in the aqueous humour, and adhered like bits of fine thread to the back of the cornea, and above and below where the iris and cornea join, solid portions of exudation were being deposited. The rheumatic pains were now chiefly confined to his right shoulder and wrist. A few leeches were applied round the eye, and treatment continued.

6th. The chemosis and vascularity of the conjunctiva had increased, and the exudation in the anterior chamber was greater in quantity, but the pain had decreased since yesterday. His right wrist was much swollen, and the hand displaced to the ulnar side from effusion in the joint, causing severe pain in the ligaments: general symptoms improved. A few leeches were again applied, and a blister behind the ear; stupes and treatment continued. I now had the benefit of Dr. Hutton's advice in this case.

7th. Slept better. From this time the pains gradually subsided, so that in three or four days all swelling had disappeared from his joints, and in a week he left his bed. The effusion of white coagulated lymph continued to progress for a few days, and then all the anterior chambers being blocked up by it, the vascularity and chemosis began to diminish. Mercury was continued for some time, and blistering behind the ears and to the temple, and afterwards he was directed to take iodide of potassium and decoction of cinchona.

On the 14th the iris was becoming visible all round its circumference, but a mass of pale exudation filled the centre of the eye,

projecting from the anterior surface of the lens, passing through the pupil, and reaching to the back of the cornea. I may mention that this morning I again found a wine-bottle at his bed-side.

In about a fortnight more all the exudation had nearly disappeared, the pupil was large and irregular, and the inflammation of the conjunctiva had greatly decreased while using eye-drops of vinum opii. In another week an issue was directed to be inserted in his temple, and cod-liver oil was given internally, with small doses of the oxymuriate of mercury. He went to the country, and I saw him at intervals afterwards. The iris, and indeed the eye generally, resumed in every respect its natural appearance, but he never recovered his vision, being barely able to distinguish light from darkness with the affected eye. As far as I could learn he never had been subject to epilepsy previous to this attack, nor did it recur afterwards.

Professor Osborne stated that he had lately, in three cases, opportunities of observing a peculiar effect of chloroform taken into the stomach, in controlling the depressing and saddening feelings belonging to hypochondriasis. Considering that state to be produced by a depraved sensibility of the stomach or colon, and frequently of both, he was led to the internal employment of chloroform, which, being promptly volatilized at the temperature of the stomach and before being decomposed by the process of digestion, ought to be expected to act as a local anæsthetic, even though the dose should not be sufficient to produce any change in the function of the brain.

The first patient who presented the conditions requisite for this experiment was a married woman, and a mother, aged 33, of a querulous disposition, as was well marked in her countenance, and who had been on a former occasion under his care and that of another practitioner, complaining of a variety of pains in the abdominal region; and she, although relieved, yet persevered in the belief that she still had some internal disease. She now appeared to labour under spinal neuralgia. After this had yielded to the application of nitrate of silver to the spine, and some other remedies, she still continued to feel an indescribable sensation of depression, and of internal annoyance, no longer to be referred to the spinal nerves;—no cause for it could be detected. The appetite was good, and the action of the bowels regular. In two days, after taking ten drops of chloroform thrice daily, she *began, for the first time, to acknowledge that she was better*, and in a few days afterwards was free from complaint. The second case was that of a caretaker in the Linen-hall, aged 29. He complained of the deepest dejection of spirits, and of an uncontrollable aversion to make any exertion. His countenance expressed sadness and moroseness. All the functions were in a healthy state, except that the heart's action became tumultuous when excited either by emotion or exercise; but no organic disease could be detected. He stated that he had not been addicted to excesses of any kind, and that there was no cause for

his lowness of spirits. He got valerianate of zinc, and also pills to regulate his bowels; but although the heart's action became steadier, yet the depression and inward sensation continued the same. After taking twenty drops of chloroform thrice daily for two days, *he began to confess*, what he never did before, *that he was better*. His sleep being still unsatisfactory and disturbed by disagreeable dreams, he was ordered to take forty drops at bed-time. He now stated that he slept with a pleasing dream of seeing his brother, who had gone to America. During the two following nights he took the same dose; and, although his sleep was interrupted by the disturbance attendant on a man in a dying state in the same ward, yet when he did sleep his dreams were pleasant, being usually that he was enjoying the company of the most agreeable of his friends. He was dismissed with a marked improvement in his countenance, and *acknowledging that he was better.*

The third case was that of a farmer from the county Wicklow, twenty-eight years of age. In him the poet's exclamation, *Beati agricolæ!* appeared to be completely reversed. The angles of his mouth were drawn down, his brow generally contracted, and he appeared sometimes as if contemplating suicide; yet he stated that he was in comfortable circumstances, married, and with a family. He complained of an inward sinking and sense of depression, so constant and overpowering, that for some months he could not command himself to make any exertion, and had become unable any longer to attend to his business. His bowels were usually torpid, but although he had repeatedly taken purgative medicines with effect, yet he had obtained no further benefit. A careful examination having been made without detecting any disease, he was ordered to take ten drops of chloroform thrice daily, and two assafœtida pills every alternate night. At the end of about four days of gradual improvement his countenance had become placid. *He confessed that he felt much better;* and in a few days afterwards, feeling a strong desire, and also a capability, of resuming his ordinary avocations, he went home.

These case are selected as being nearly free from complication. It must, however, be recollected, that there are several other uses to which chloroform may be applied in affections of the stomach and intestinal tube, but this appears to be one of the greatest value, inasmuch as no other medicine can be named which in this respect seems to come into competition with it. How far the effect is permanent and capable of completely removing the sensation of hypochondriasis, or in what degree it may require to be resumed or repeated, Dr. Osborne as yet has not been able to determine; neither did he think it necessary before this Association to clear himself from the absurdity of bringing it forward as a universal *nepenthes*. Like all other agents affecting the nerves of sensation, its potency must vary much in different individuals, requiring various doses, while in some cases it may fail altogether.

With regard to the mode of administering chloroform internally:

—as its specific gravity is nearly 1·5, and it is insoluble in water, it must, when swallowed, soon settle at the bottom of the fluids in the stomach; and although it is volatilized, yet being covered, and under pressure, it may remain in contact sufficiently long to irritate the stomach at the part of contact, as was proved to take place in the case of camphor by Orfila. Hence, then, it is desirable that it should be diffused or diluted before it is taken. In aqueous mixtures, even when shaken up, it soon falls, so that it cannot be equally measured out, and its pungency is annoying even to the mouth. In gum Arabic mucilage it soon collects in large globules at the bottom of the bottle, covered with a white powder of arabine which it has precipitated. To obviate this inconvenience it has been proposed to give it suspended in syrup, but to make a syrup of the same specific gravity 1006 grains of sugar to the ounce of water would be required, while that of the Pharmacopœia contains only 874 grains; besides chloroform has a heavy sweet taste which renders the addition of syrup peculiarly objectionable.

The menstruum which Dr. Osborne used in the above and other cases was the decoction of Irish moss (carrageen). With this chloroform forms a uniform mixture, and in the proportion of ten drops to the ounce they remain for an indefinite time without separation taking place. The taste of the mixture is sweet like that of a heavy syrup, to relieve which it may be well to add a few drops of some aromatic or bitter tincture.

Another mode of avoiding the pungency of chloroform is by giving it in combination with tinctures, as it is soluble in alcohol, and remains dissolved even in proof spirit. The following is a specimen of this kind of formula, and is peculiarly grateful to the taste, and susceptible of various additions and alterations, according to the requirements of individual cases:—Chloroform, and tincture of ginger, of each half an ounce; aromatic spirit of ammonia, two drachms. Mix. Twenty-five drops to be taken thrice daily in a wine-glassful of milk.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

THIRTEENTH SESSION.—1852-53.

Purulent Cysts in the Heart.—Dr. Banks exhibited a heart taken from the body of a girl aged 13, who had been admitted into Sir Patrick Dun's Hospital on the 7th of the present month, having been ill for a fortnight. She complained of extreme difficulty of breathing, and uneasiness in the chest; she had great irritability of the stomach, everything being rejected almost the moment it was

swallowed; the face was flushed, and of a dusky colour, and there was œdema of the lower extremities; the pulse was rapid. On examining the heart, no abnormal sounds were heard; the base of the left lung was dull on percussion; there was some crepitus, and bronchial râles were audible over the greater part of the chest. She said she had had spitting of blood before coming to the hospital, and from the period of her admission up to the sixth day, on which she died, hemoptysis occurred whenever she coughed. The symptoms present at the time of her admission quickly increased in intensity: the lungs became more congested; the breathing more difficult and rapid; the pulse attained an extraordinary degree of rapidity. On one occasion, Dr. Duncan (under whose care the patient was) counted it up to 240 in a minute. The œdema increased; the surface of the body became generally anasarcous, but there was no ascites, nor any fulness in the region of the liver; the urine was scanty and high-coloured, but contained no albumen; there was a slight icteroid hue.

Autopsy.—Large masses of extravasated blood were found in the lungs at their bases, more especially on the left side; both lungs, throughout their whole extent, were congested with blood, but did not contain any tubercles; the spleen was remarkably smooth, and the liver presented a good example of what is called the nutmeg-liver, with biliary congestion; the heart presented no traces of valvular disease, but in the interior of the left ventricle small cysts were found imbedded between the fleshy columns; and on expressing their contents, and submitting them to microscopical examination, pus globules and broken-down granules were discovered One as large as a pigeon's egg was found in the right ventricle.—*April* 16, 1853.

Tumour removed from the Mammary Region.—Dr. Fleming presented a tumour which he had lately removed from the mammary region, and gave the following history of the case:—

The patient was a married lady between forty and fifty years of age; she had never any children; she enjoyed excellent health; twelve years ago she had a tumour of the breast, which was removed by Sir Astley Cooper. Four years afterwards another tumour formed in the same situation, and was excised by Mr. Aston Key. Within the last six months a third appeared above the natural situation of the nipple, and nearer to the sternum than to the axilla: the skin did not adhere to it, and it could be moved upon the pectoral muscle. An incision was made over it by Dr. Fleming, when it was readily removed by the finger. It was invested by a capsule, and in appearance and structure strikingly resembled the chronic mammary tumour delineated by Sir A. Cooper; under the microscope it exhibited no character of malignant disease. In some features it resembled the sero-cystic tumour described by Sir Benjamin Brodie, but the greater portion of it was quite solid, and, as it were, made of a number of smaller tumours. Dr. Fleming referred to a

similar case which he had brought before the Society in the session of 1846.—*April* 16, 1853.

Hepatic Abscess.—Dr. Banks detailed the following case, and exhibited the specimen:

A man, aged 50, was admitted into the Hardwicke Hospital on the 5th of April. He was a clerk in a mercantile office, and of intemperate habits. He had never resided out of this country, and had been tolerably healthy up to a recent period. On my seeing him upon the day after his admission, there was an abundant herpetic eruption about the mouth, top of the head, and back of the neck. Recollecting the frequency of the occurrence of herpes in connexion with pneumonia, I at once, of course, suspected its existence in this case, and on examination I found the base of the right lung dull, with crepitating rales. He was in a very low condition, his pulse rapid and feeble, with a look of prostration about him which made me form an unfavourable opinion of his case. On the 7th, the second day after his admission, he had a rigor for the first time. There was some fulness about the region of the liver, and some slight tenderness on pressure. On the 9th he had another rigor, which lasted, like the former, for three or four hours. The pulse was 120, and now for the first time a slight icteroid hue was perceptible, the conjunctiva being tinged, and the surface of the body slightly yellow. The urine had been natural and clear; it was now dark, and contained an abundance of the lithates. On the evening of this day he declined very much, and became exceedingly weak. On the morning of the 10th he rallied, and said that he felt much relieved; the lung appeared to have undergone a favorable change. On the 11th he was again, however, seized with rigors. He died on the morning of the 12th, after a severe and prolonged rigor. The jaundiced hue of the skin, and the repeated rigors, together with the improvement in the state of the lungs, caused me to suspect the existence of abscess in the liver; there had been no diarrhœa or dysentery.

Autopsy.—The base of the right lung was congested, and both lungs were slightly emphysematous; the spleen was like a mass of jelly, and broke down on the slightest touch.

On examining the liver, we found several small abscesses, and one of considerable size, and deeper than the others, and in the neighbourhood of the abscesses there was a diffused suppuration, and great congestion of the organ. There had been very few special symptoms in this case.—*April* 16, 1853.

Pericarditis, subsequent to Rheumatic Endocarditis.—Dr. M'Dowel exhibited a heart which illustrated the pathology of repeated attacks of pericarditis, and gave the following history of the case:

A boy, twelve years of age, first came under my observation three years ago, for a very severe attack of acute rheumatism. At this time there was no evidence of the pericardium having been en-

gaged. A year afterwards he became again a patient of mine for chorea. There was now a loud systolic bellows murmur over the apex of the heart, which indicated incompetency of the mitral valves; there was likewise evidence of hypertrophy of the heart. This boy once more was admitted under my care into the Whitworth Hospital, in the end of March, 1853. He was now suffering much from difficulty of breathing; he had frequent cough, lividity of the lips, and intense dyspnœa, amounting to orthopnœa. A rough, grating, friction sound, which was felt as well as heard, existed over the pericardial region; the heart was much enlarged, and both lungs were congested inferiorly. There had been no hemoptysis or dropsical effusion. He died April 13th.

Post-mortem Examination.—There were six ounces of blood in the pericardium; the heart was excessively enlarged. This was chiefly due to dilatation of its left chambers. The mitral valves were opaque and thickened; the cords were hypertrophied and shortened; the posterior division of the valve scarcely existed; the opening was much dilated, and the valves insufficient to prevent regurgitation.

The pericardium presented evidence of having been the seat of repeated attacks of pericarditis. On both serous surfaces lymph was deposited in successive layers, so as to be in some places at least three-quarters of an inch in thickness. The outer layers were in some places soft, and could be easily detached, whilst below lay lymph of very firm consistence; around the base of the heart there were adhesions of old standing, the bands of lymph being very firm, and in some situations half an inch in length. The apex of the organ was free. The entire surface presented the utmost irregularity of form, and hence the roughness of the friction sound. The lower lobes of both lungs were solidified.—*April* 16, 1853.

Fractures of the Pelvis.—Dr. Fleming exhibited a series of specimens of fractures of the pelvis. In the first one which he described, the patient was a man aged 30, upon whom a large bank of earth had fallen. He was brought at once to the Richmond Hospital, and died within thirty-six hours after the occurrence of the accident. The chief symptoms during life were those of extreme collapse and internal hemorrhage; the pulse could scarcely be felt, the face was pallid, and the surface cold. The perineum, scrotum, and penis were distended with blood, and he had a constant desire to pass water. A catheter was introduced, and some bloody urine was drawn off, though it was not certain that the instrument had entered the bladder. Upon examination *post mortem*, a large quantity of effused blood was found in the hypogastric region, between the abdominal muscles and the peritoneum, and passing down into the pelvis on each side. The bladder was found torn from the urethra, and an instrument now introduced was found not to reach the bladder, but to enter a large cavity filled with blood, corresponding

to the seat of laceration. The pubis and ischium were broken upon both sides.

The second case was that of a young child who had been violently thrown down by a furniture van, and was brought to the hospital shortly afterwards, suffering from severe pain in the pelvis, and great desire to pass water. His parents would not leave him in the hospital that evening, and next morning it was reported that he had suffered great agony all night throughout the whole of the lower part of the abdomen, and that the desire to void urine had been incessant; he could not bear to be touched in the hypogastric region, yet there was no external sign of contusion. The other symptoms were those of collapse. The child survived the accident for five or six days. Upon several occasions the catheter was introduced, and each time about four ounces of urine drawn off, unmixed with blood, nor did the child at any time pass bloody urine, and yet the post-mortem examination showed that the bladder had been wounded. Upon the right side, the horizontal ramus of the pelvis was broken, the fracture passing very obliquely downwards and outwards, and the sharp extremity of the external fragment perforating the corresponding portion of the right side of the bladder, and wounding, but not transfixing the opposite wall of the organ; the ascending ramus of the ischium was also broken. There was a considerable quantity of blood effused into the pelvis, external to the peritoneum, but no urine appeared to have escaped from the bladder, and there was no trace of general peritonitis, but in the vicinity of the wound the bladder had become adherent to the adjoining texture.

The third specimen exhibited by Dr. Fleming was taken from the body of a woman aged 36, who, along with several other people, had been injured by the falling of the house in which they resided. They were all brought to the hospital, and admitted under the care of Professor Smith. Two of them had sustained fractures of the pelvis; in one of them the body of the ilium was broken through. This case terminated favourably, but in the other case, the woman died in six days. She had no peritonitis, nor were any of the pelvic viscera injured; there was no hematuria; she seemed to die from the effects of hemorrhage into the pelvis, in which an immense quantity of blood was found after death. There was a comminuted fracture of the pubis and ischium upon each side, and upon the left side the ilium was broken close to the sacro-iliac symphysis.

Dr. Fleming, in conclusion, alluded to another case of injury of the pelvis that had lately been in the hospital, under Professor Smith, and which had a favourable termination. The patient was a young child, over whom the wheel of a cart had passed; one labium was extensively lacerated, and the ossa pubis separated from one another at the symphysis for a distance of nearly an inch and a half. The child recovered without the occurrence of any very serious symptom.—*April* 23, 1853.

Plastic Bronchitis.—Sir Henry Marsh exhibited a recent specimen, and a drawing illustrating the affection which has been termed bronchial polypus, and gave the following history of the case. The patient was a man aged 52, of small stature and delicate appearance; he had been subject to bronchitis for five or six years. Five years ago he had an attack of hemoptysis, of so severe a nature that his life was for a time despaired of. He has since then had two or three attacks, which were, however, comparatively slight. His pulse is accelerated, but he has no well-marked hectic. Examination with the stethoscope showed that a tubercular deposit occupied a considerable portion of the apex of the right lung. He has a very distressing cough, the paroxysms of which are sometimes so severe as to induce nausea and vomiting. He has on several occasions expectorated masses of lymph of various sizes: that which I now exhibit to the Society, and which is of considerable dimensions, and moulded to the form of the air-tubes, was expectorated with comparatively little difficulty: it was of an intensely red colour, in consequence of its surface being covered with blood.—*April* 23, 1853.

A Semilunar Valve of the Aorta dilated into a large Pendulous Pouch containing two Large Openings.—Dr. Law exhibited what he considered a very interesting and novel specimen of cardiac pathology, consisting in a remarkable dilatation of one of the semilunar valves of the aorta, which formed a pouch that hung down into the ventricle. It might almost be designated an aneurism of the valve, especially as it was found to contain a coagulum. The structure of the valve was greatly attenuated, and exhibited two very large perforations. The pouch, with its thin walls and two openings, bore a very close resemblance to the end of the finger of a leather glove worn so thin as to give way, and to get into nobs. Dr. Law regretted that his details were necessarily very imperfect, as the subject of the case was almost moribund at the time of his admission into Sir Patrick Dun's Hospital under Dr. Osborne's care. The patient was John Flynn, aged 34, reported to have enjoyed good health till about eleven weeks before he was received into hospital. His symptoms on admission were, extreme distress, which he referred to the region of the heart, and the most urgent dyspnœa; he had universal dropsy. There was a distinct double murmur heard behind the sternum; the murmur was propagated along the arteries; the impulse of the heart was not strong, nor had the pulse at the wrist the full jarring character which it usually has in aortic valve disease, of the existence of which lesion Dr. Law had no doubt on account of the double abnormal sound behind the sternum. He exhibited a markedly pallid, anemic appearance. His friends reported him to have been in good health until his present illness, which came on quite suddenly. It began with a feeling of great distress and suffering in the situation of the heart; his breathing was very much oppressed; he had he-

moptysis, but to no great extent. The dropsy came on very early in his illness. He only survived his admission into hospital four days. No means employed afforded any relief. Dr. Law, in exhibiting the pathological specimen, expressed his belief that no exactly similar one had before been submitted to the notice of the Society. Specimens of perforations of the valves of the aorta had been exhibited, but these perforations were so small, and situated so near to the free edges of the valve that they were closed by the edges of the other valves, and so did not compromise the functions of the affected one, or admit of regurgitation, and therefore did not give rise to the ordinary signs of aortic valve disease.

Dr. Law only wondered that the lesion was not more common when the function of these valves was considered, having to sustain the weight of the column of blood. The pathological state of the valve in the specimen now exhibited consisted in an extreme atrophy or wasting of it, causing it to be elongated, and to give way under the weight of the superincumbent blood. The part that had not yielded was extremely thin, and almost diaphanous. An opposite condition of these valves, consisting in a thickening and contraction of them, was what was most frequently met with; nor was it generally hard to account for this alteration in them, being most commonly a part of either endocarditis or carditis. But in the present case there was nothing in the general condition of the patient, nor in the state of the organs of the circulation, calculated to throw any light upon the cause of the lesion. Dr. Law believed that the disease did not exist until the patient was made aware of it by the sudden seizure of præcordial oppression and dyspnœa, that is, that the valve had not given way till then, although the atrophy of the valves may have been going on insidiously for a considerable time before. And the reason he assigned for his conviction of this recent date of the injury to the valve that affected its function, was the slight degree of hypertrophy and dilatation the ventricle had undergone, which is ever a measure of the extent and duration of aortic valve disease. Dr. Law here exhibited, by way of contrast, a specimen of aortic valve disease in which the valves were very much thickened and shortened, and in which the valves of the left ventricles of the heart were enormously thickened, and its cavity much enlarged. The case was one of long standing. Dr. Law omitted to notice that a fibrous clot filled the pouch formed by the elongated semilunar valve, and constituted part of one which occupied a considerable portion of the left ventricle, but this, he conceived, had formed shortly before death, and was probably the cause of the extreme præcordial distress, which was the most urgent symptom in the last hours of the patient's life.

Dr. Law remarked upon the early appearance of dropsy, and of hemoptysis in the present case, phenomena which he thought were explained by the nature and extent of the lesion of the valve. In ordinary cases of aortic valve disease, these two phenomena do not generally occur until the disease has existed for a considerable time,

and nature provides for the increased duty imposed on the ventricle to sustain the blood returning into it through the imperfect valves, by an increase of its muscular structure and consequent increase of power and energy. And this provision does meet the emergency for some time. But a time arrives, different in different cases, and this often accelerated or retarded by the treatment that may have been adopted in the case,—accelerated if a lowering, depressing treatment have been adopted; and retarded if an opposite mode of management have been used,—but in almost all cases a time does arrive when, from the progress of the disease, the ventricle loses its power and becomes the seat of congestion, against which it can no longer strive. This congestion of the ventricle then gives rise to congestion of the corresponding left auricle, and so the lungs become congested, and then the hemoptysis and the dropsy ensue; phenomena that appear so much earlier in mitral valve diseases but which result from the same cause in both cases. Dr. Law remarked that, in his case the extent of the valvular disease, and the suddenness with which it had come on, had effected what in most cases required considerable time to effect,—the disabling the ventricle to sustain the returning blood, for which it had not been prepared, as in chronic cases, by a gradual hypertrophy of its walls. This case illustrated what the pathologist and physician often assert, that nature will submit to and bear any amount of injury if she have time to accommodate herself to it, but she cannot bear to be taken by surprise.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

SESSION 1852-53.

Dr. M'Swiney detailed the following case :—On February 8th, 1853, he was called to attend Mrs. ——, a short distance from town, in labour of her first child. When he arrived (about 11 o'clock, A.M.) he learned from the nurse that pains had commenced at an early hour on the same morning, and that the membranes had been ruptured about 10 o'clock, A.M. Upon examination, during a pain, his finger came in contact "at once" with a tumour of an elastic nature, which became more tense each instant, as the pain (then present) proceeded, and in part disappeared within the vagina upon its cessation. Upon the first examination it was his impression that the nurse had made a mistake, and that what he had touched was the presenting bag of membranes; but, upon continuing it further, he discovered that it was a tumour apparently attached to the anterior wall of the vagina, high up, though its exact origin could not with perfect satisfaction be traced, because

of the head having descended into the pelvis. Not having before encountered a similar state in connexion with labour, he was for a moment embarrassed. He now knew that the liquor amnii had been evacuated, and that it was not the membranes distended therewith; and from the fact of the patient having passed water freely and plentifully a short time previous to the examination, he could not consider it the distended urinary bladder. From the fluctuating sensations conveyed to his finger, his first impulse was to plunge a lancet into it and evacuate its contents; but, although it subsequently appeared he might have done so with advantage, prudence at the time induced him not to adopt that course, more especially as from the compression of the urethra by the head he found it impossible to introduce the catheter without using undue force; and thus, he had no *certain* means of knowing whether there might not be a prolapse of that viscus; a possible, but by no means probable occurrence in one so young (nineteen years of age); yet this state he considered might here be rendered likely from the manner in which the orifice of the urethra was displaced, viz., "drawn downwards and backwards." He attempted the reduction of the tumour in the mode practised with success by Meigs, when he encountered a vaginal varicocele during labour. Reduction was, however, rendered impossible by the firm pressure of the head, which was low in the pelvis. In the meantime powerful pains continued with great regularity for more than five hours, during all of which time the head was pressing upon the perineum, with imminent risk to its integrity. At each pain the tumour was projected some inches beyond the external orifice, at such times resembling an unruptured bag of liquor amnii; it would then again recede into the vagina, seeming to be upon the point of rupture each moment. At the end of this period a living male child was born, and the placenta came away in due course, the patient only suffering a very trivial laceration, less so than might have been expected from the narrowed state of the urethra consequent upon the room occupied by the tumour.

In the absence of any necessity for interference, Dr. M'Swiney did not direct particular attention to the investigation of the exact seat or nature of the tumour for some days. Upon then making an examination, he found a pale, greyish-coloured tumour, of irregular form, visible between the labia, tending to keep them partially separated; that this tumour extended within the vagina for some inches, being continuous on either side with its mucous membrane, and attached for about two and a half inches along the mesial line upon the anterior superior surface of the canal immediately beneath the urethra. The contents of the tumour were evidently fluid, and in general appearance, as well as to the touch, it bore much resemblance to a ranula. A few transverse bands, very like pale muscular fibres, extended at intervals across its surface. Its dimensions were about two and a half inches long, and one and a half broad; it was unattended with pain, making its presence known to the

patient merely by a certain sense of weight and "dragging down." When a catheter was passed into the bladder, and the urine drawn off, no diminution of the tumour followed, and the urethra could be traced towards the bladder, distinct from the tumour. The patient considered that its cause was owing to a severe fit of coughing with which she was seized a few weeks prior to her accouchement, but there was not the least reason to suppose it to be a hernia.

Dr. Churchill was called in consultation, who recommended that a portion of the tumour should be removed, and the sac dressed with lint. This advice was followed a month after delivery, when about an ounce and a half of a clear albuminous fluid, of the consistence of mucilage, was discharged. It was of an adhesive nature, and closely resembled the contents of some ranulæ. In ten days complete recovery took place. The portion removed was about an inch and a half long, half an inch broad, and between two or three lines in thickness. It was white, dense, and presented internally a smooth, shining, colourless surface. It could not satisfactorily be separated into layers, so as to demonstrate anything like a distinct lining membrane of a true secreting character; consequently, Dr. M'Swiney was not prepared to say whether it was a true encysted tumour, although it presented most of the characters of such. His own impression was that it was originally produced by the occlusion and consequent dilatation of a mucous duct.

Dr. M'Swiney remarked that, in the very imperfect search amongst obstetric records which he had time to make, he had not been able to find any account of a case exactly similar to the one he had just noticed, the chief peculiarity of which was the period of its first discovery, rendering its exact diagnosis impossible, and consequently preventing any interference, although its presence was fraught with considerable danger to the patient. Dr. Churchill had never seen such a case before. Dr. Meigs' case (alluded to) was very similar in every particular, save the nature of the body forming the tumour, and the fact of its reduction before delivery. Dr. Ashwell, speaking of disease of the vagina, says: "And one or more of its mucous follicles may be filled out into a fluctuating encysted tumour, closely allied, in its mode of formation, to the encysted tumours of the labium, or the sebaceous cysts of the skin." But Dr. Ashwell never knew of a case first discovered during labour, or he would probably have mentioned it; and Dr. M'Swiney had not been able to find any allusion to a parallel case in Lee's Clinical Midwifery, nor in the works of several other writers to which he referred.

Sixth Meeting, Saturday, 30th April, 1853.

Dr. Beatty read a paper upon the administration of chloroform in cases of labour, and brought forward numerous facts in proof of its utility during parturition.

Dr. M'Clintock read a communication upon phlegmasia dolens, as a disease of women *not* in a puerperal state. After a brief historical sketch of the notices by Puzos, Willan, Lee, Copeland, Meigs, and others, of this disease under the circumstances just mentioned, he proceeded to narrate an instance of the kind that had fallen within his own knowledge.

The case differed from those related by any of the above authors in its purely idiopathic character. The possibility of any chronic uterine disease having existed was not admissible, neither had there been anything like symptoms of metritis, nor yet was the crural attack preceded by *sudden* suppression of the catamenia.

The subject of the case was a young lady, aged 18, who had been for some time under treatment for scanty menstruation and symptoms of incipient chlorosis, consequent upon a change of residence from the country to town. One evening in autumn, whilst the menses were present,—though, as usual, in small quantity,—she stood for nearly two hours together on damp grass. On the following morning she felt the right leg rather stiff and painful; towards evening it grew worse, and began to swell. Two or three days passed over before alarm was excited or any treatment adopted, and by this time the symptoms had become fully developed. The pulse was 120; the right leg was swollen, tense, and free from discoloration; no pitting on pressure; not much pain complained of, unless the limb was moved or handled; marked tenderness in the groin, over the femoral vessels. The line of treatment pursued was the same as that usually employed for phlegmasia dolens, and consisted in the application of leeches over the femoral vessels in Scarpa's space, constant stuping of the entire limb, absolute rest, and low diet. Under this management the acute symptoms subsided in the course of a week. One relapse took place, which necessitated a recourse to the antiphlogistic treatment, and considerably retarded her convalescence: after this was subdued, some stiffness, and enlargement of the leg from the knees down, still remained, and continued for very many months, in spite of bandaging, frictions, &c. These symptoms were always increased towards evening, or after much walking or standing. Nearly eight months elapsed before the limb had so far recovered its former state and condition that she could use it in the ordinary movements of progression without feeling any pain or inconvenience.

In conclusion the author remarked, that in this case the existence of chlorosis, which is universally held to be a blood disease, tended to confirm the views of Dr. M'Kenzie in regard to the etiology of phlegmasia dolens, that physician being of opinion that vitiation of the blood has much to do with its production.

Recommendations of the College of Physicians of Ireland relative to the Prevention of an Outbreak of Cholera, and the Treatment of its Earlier Stages.

[The following document, which has been recently issued by the above learned body, is so admirably drawn up, that we have thought it well to reproduce it in our pages, in order to its preservation for future reference by the profession.—Ed.]

The Committee appointed by the King and Queen's College of Physicians in Ireland, to consider the requisite precautionary and remedial measures in reference to the apprehended arrival of cholera in this country, suggest that the authorities intrusted with power for the preservation of the health of the community should direct their attention, first, towards preventing the extension of the disease in case of its spreading to this country; secondly, towards preparing the most efficient and prompt means of meeting the disease in its earliest stage.

First in importance at the present moment are to be considered the preventive measures. It were out of place here to discuss the origin of cholera; suffice it to say, that, whatever be its original producing cause, accumulated observations prove that the diffusion of the poison of this disease, as well as of fever, small-pox, and several other epidemic diseases, is promoted by certain natural causes with which we are familiar, and which it is quite possible to control. In proof of this statement, your Committee would refer to the circumstance of cholera being most intense in the neighbourhood of the Thames, in London, particularly on the south side of the river; and its visiting and concentrating itself in 1848–49 in the same localities it had haunted in 1832; and to the further fact of the medical authorities in London, Dublin, and elsewhere, predicting with too prophetic accuracy the very streets, lanes, alleys, and houses in which it would subsequently occur.

If experience has led to the above conclusion, it has also confirmed the opinion that the efficacy of sanitary measures in preventing and limiting the progress of such epidemics as cholera, typhus, and small-pox, is indubitable; and that consequently there is at present not only a necessity for adopting such means of precaution, but also the greatest encouragement to hope that, if they do not prevent, they will at least greatly diminish the range of the disease against which we are now endeavouring to guard.

I.—SANITARY MEASURES.

The most important object, perhaps, that can be attempted, both in the public management of a great city, and in the domestic arrangement of houses, is to secure an unvitiated atmosphere, and as far as possible to preserve it from those foul exhalations with which it must become loaded wherever a great number of people are con-

gregated in a comparatively small space. To secure this object, more especially as a means of preventing the spread of epidemic diseases, the strictest attention to sewerage is imperatively necessary.

The effect of deficient or imperfect sewerage on the spread of epidemics is so fully established, that it may be regarded as indisputable. The facts observed in Great Britain and Ireland during the prevalence of the epidemic cholera in 1849, if they do not place cholera and defective sewerage in the relation of cause and effect, at least prove an intimate connexion between them. All manure heaps, filth of every description, stagnant pools of water, &c., should be immediately removed from the vicinity of dwellings. The main sewers should be frequently flushed with water, and all the communications between them and the atmosphere should be closed, except those requisite for drainage; the latter should be provided with water-valves, or trapped so as to prevent the escape of recurrent effluvia. If the sewerage of the city of Dublin permitted, the Committee think it would be advisable to have all the sewers flushed simultaneously, by all householders allowing their water-supply to escape at the same hour on one day of the week; and if this in its full extent be impracticable, they are of opinion that it should be carried into effect so far as it may be possible.

The Committee would, therefore, urge upon the authorities the necessity of persisting in carrying out generally in the strictest manner, and without delay, those stringent powers with which they are intrusted by the Legislature for the prevention of epidemic diseases, by removal of nuisances, prevention of over-crowding in lodging-houses, extending the supply of water, and promoting by all other means at their disposal the public health, and the general sanitary improvement of the city. The refuse matter, street sweepings, &c., removed by the scavengers, should be so disposed in convenient depositories outside the city as not to become additional sources of danger; moist filth should be covered over with dry materials, so as to restrain evaporation and the disengagement of offensive vapours as far as possible; deodorizing substances, such as dry turf-mould, peat-charcoal, or chloride of lime, should be freely used to neutralize them.

All occupants of houses, as well in the higher as in the lower walks of life, should be informed that it is not merely in the neglect of the main sewerage that a risk of promoting the spread of disease exists; there being scarcely a house of any class in which the sewerage and sculleries are not so mismanaged as to render them dangerous to the health of the inhabitants. All ash or filth pits should be as far as possible kept apart from the dwelling-houses, and carefully closed in, or covered up by closely fitting doors or other contrivances, to prevent evaporation and the dissemination of the noisome effluvia of decayed animal and vegetable matter. All communication between the house sewers and the interior of the dwelling-house

should be carefully closed; and those parts with which it is necessary to keep a communication to get rid of liquid waste should be carefully fitted with water-valves, so constructed as to admit the passage of liquids downwards, and prevent the return of the foul air upwards. The air of the dwelling-house being warmer than the air of the sewers, and escaping by the doors, windows, chimneys, and other apertures, tends to exhaust the sewers of their foul air, which, rising in the house to supply the place of the heated air which has escaped, keeps up a constant supply of foul air, which, passing from the sewers through the dwelling-house, is necessarily breathed by the occupants.

The same observation applies to water-closets, privies, &c., but wherever valves are inapplicable, closely fitted lids or other means of closure should be kept constantly applied.

Passengers are occasionally offended with exhalations from sinks, and from privies in areas, or under the street; in such cases the owners of the houses should be obliged to fit them accurately and immediately with air-proof fittings and doors, to prevent the escape of foul effluvia; and if these means do not succeed, they should be obliged to convert them into properly constructed valve-closets, which can now be provided at a comparatively slight expense.

The too prevalent practice of throwing filth into streets and lanes should be effectually prevented; it is in many ways injurious; and the attempts made to cleanse such places by sweeping, only spread the refuse matters over a more extended surface, and aggravate the primary nuisance. The authorities should provide covered carts for the removal, every morning, of such matters as would otherwise be thrown into the street. The Committee cannot too strongly reprobate the practice which they understand has recently grown up in the poorer districts, of converting the cellars and kitchens, which have been condemned as residences, into ash-pits and receptacles of all sorts of filth.

The Committee cannot avoid observing that the sanitary condition of the metropolis of Ireland must, notwithstanding every temporary and partial effort at improvement, remain in an unsatisfactory state unless means be provided for effectually abating that greatest of all nuisances, an enormous open sewer formed by a tidal river running through the middle of the city. The Liffey, under the present system, instead of being an ornament and an advantage, as it would be if it received only the natural drainage of the district contiguous to its banks, is converted into a receptacle of foul matters from the numerous sewers which contaminate its waters, and the deposits from which, being left exposed when the tide ebbs, taint the atmosphere to a great extent with the most offensive effluvia. The Committee are aware that a very considerable expenditure of time and labour might be required for carrying into effect any plan which would remedy this monstrous evil; but they consider that they should have very imperfectly performed the duty of advising

requisite sanitary improvements if they had not directed attention to this, of which the importance to the health of a population, now amounting to a quarter of a million, can scarcely be overrated.

Lodging-house keepers, and the landlords of houses let out in tenements to the poor, should be subjected to the regulations against overcrowding; they should be compelled to procure an adequate supply of pipe-water; to provide proper ashpits and other conveniences; and should be obliged to secure proper ventilation by opening the windows at certain times, by the use of ventilators, perforated zinc plates, louvred openings, or other means adapted to this important object.

The means used for the lighting and heating of rooms may be made subservient to ventilation. Moderate fires in open grates assist the ventilation, and prove serviceable by raising the temperature within the house, and, at this season, aid in preserving the functions of the skin and bowels in a healthy state, thereby tending to avert disease.

Sudden alternations of temperature should be avoided; the internal heat of the house should not be allowed to be so high that the effect of passing out into the open air would produce chill of the surface, and possibly bowel complaint.

Whitewashing with fresh-burned lime is of great importance, not merely as a process of cleansing, but also as a purifier of great power. It has been used with success in Dublin as a check on the spread of typhus fever; and in Great Britain has been found equally efficacious against cholera. In cases where the disease should unhappily break out, the Committee would advise the free use of *chloride of lime* (bleaching powder) dissolved in water, for washing the floors of the house.

Burials within the city should be discouraged, and, if the law admits, should be strictly and at once prohibited.

The Committee are aware that much exertion has been made by the Municipal Corporation to furnish a supply of water in parts of the city where it was deficient. The Committee would suggest that this be still further carried out; and that in very poor localities, where the expense or delay prohibits laying down pipes, a water-cart for the neighbourhood might be dispatched to dispense water at the houses of the most needy, so as to secure always an ample supply, fit for cleanliness and for dressing wholesome food.

The Committee would advise no sudden changes or alteration to be made in the habits of living, where these have previously been moderate and regular. A due allowance of animal food, fish, and vegetables, with the usual condiments; and wine, sound malt liquor, or other accustomed stimulant, in moderate quantity, is unobjectionable; all excess should be avoided, but particularly in the use of ardent spirits.

Food likely to cause indigestion or bowel complaint should be avoided, particularly fruit in an unripe, decayed, or unsound state.

The state of the markets, especially the fish market has been

represented to your Committee as requiring strict and immediate attention; they are informed that large quantities of stale fish are exposed for sale every morning, and bought up by hawkers, and then retailed at a cheap rate. The use of such food is considered by the Committee to be a fertile source of derangement to the digestive organs, causing bowel complaint, and creating a predisposition to the malignant cholera itself.

Between the functions of the bowels and skin a remarkable sympathy or consent exists, so that attention should be paid to secure a healthy state of the latter, by the occasional use of the warm bath, and clothing suitable to the season, in order to keep up a sufficient degree of activity in the superficial circulation. Flannel or woollen clothing next the person is preferable at this season of the year; and strict attention should be paid to cleanliness and frequent changes of clothing.

In general, all debilitating causes must be avoided—such as excessive and long-continued fatigue and fasting, exposure to moist stagnated air, or to air loaded with effluvia of organic matters.

The Committee conclude this division of the subject by briefly recapitulating the precautionary measures, which most urgently demand not only the interference of the authorities, but the ready and cheerful co-operation of the citizens themselves.

1. Frequently clearing out the main sewers of the city, and of individual houses, by a general system of flushing them with water. The openings of the sewers to be properly valved or trapped, so as to prevent the return of either air or liquids.

2. Abating the nuisance now created by the river Liffey.

3. Removing all kinds of filth from the neighbourhood of houses, and in the removal freely using turf-mould or peat charcoal, so as to deodorize them.

4. Strictly prohibiting the practice of emptying filth into the streets or into cellars.

5. General cleansing, whitewashing, and ventilation of dwellings.

6. Regulating lodging-houses by promoting cleanliness, preventing overcrowding, and securing ventilation.

7. Providing a more unrestricted and constant supply of water.

8. Regulating the public markets, especially that for the sale of fish.

9. Prohibiting burials within the city, so far as the law empowers.

II.—REMEDIAL MEASURES, AND THE MEANS OF RENDERING MEDICAL RELIEF MOST GENERALLY AVAILABLE.

As the malignant cholera is, in the majority of cases, quite amenable to treatment in its earliest period, or that of premonitory diarrhœa; and as this, being usually free from pain, is apt to be disregarded, it is of the utmost importance that all cases of this kind should be diligently sought for and promptly treated. A ju-

dicious system of house-to-house visitation in the poorer districts should be organized in this city, and in every large town threatened with the epidemic. The medical visitors intrusted with the care of the poor should carry with them appropriate remedies, to be administered at once on discovering any case of premonitory diarrhœa.

In addition to this system, by which the Committee hope to check the spread of the disease at its first approach, it will be necessary to provide the means of medical relief should cholera become epidemic. Under this head will be included—first, Depots for the supply of medical assistance at all hours, by day and night; second, Hospitals for the more destitute, or those who could not be treated at their homes; and proper means for their immediate and commodious conveyance.

The Committee recommend that the city should be divided into a number of districts; at some convenient point of each of which a medical depot should be established, with a sufficient number of medical attendants and assistants, so that one at least might be always on the spot, both by day and night. The districts should not be too extensive, and should in the first instance be subject, as far as may be judiciously practicable, to careful house-to-house visitation.

Medical relief should not only be available at all hours, but should also be obtainable on application, without recommendatory ticket or any other formality; and notices should be posted up throughout the city urging all parties affected with diarrhœa to apply immediately at the depots for relief.

The Committee submit, whether, in cases of great destitution, there should not be also given to the diarrhœal or cholera patients some relief in nutritious food, such as well-boiled rice and milk; a practice whose utility is placed beyond doubt, by the experience of the Meath-street Sick Poor Institution, during a period of more than fifty years; and as was partially done in 1832 and 1849, on patients being discharged from the cholera hospitals.

The most destitute, and indeed all who cannot receive proper accommodation and attendance in their own homes, should be removed to hospitals. The Committee see no good reason why the existing hospitals of the city might not, as far as possible, be made available for this purpose. Where the number of beds has been reduced in consequence of the diminution or withdrawal of parliamentary aid, the wards might be temporarily re-established during the epidemic. In addition, there should be hospitals devoted exclusively to the reception of cholera cases, as there were in former epidemics. Wherever it is practicable, the services of physicians or other medical practitioners who have had experience of cholera in former epidemics should be obtained, and a staff of senior medical students should be organized to assist.

Means of conveying patients easily and expeditiously to the hospitals should be provided, with suitable attendants, available on the shortest notice. The patient should be conveyed in the recumbent

posture. Vehicles on springs, provided with beds, and their sides cushioned or padded, with proper apparatus for heating and ventilation, will be requisite for this purpose.

It is a great object, for the sake of the public health, that any outbreak of the disease should be, if possible, prevented in the great establishments of the city. In the poor-houses additional wards should be selected as hospital wards, and assistant medical attendants nominated, so as to secure immediate attention to incipient cases.

The same steps should be taken in the prisons and other large buildings.

It cannot be too strongly impressed upon the public, that, in the great majority of cases of cholera, there are two distinct stages; and that, consequently, precautions should be taken to deal with each of them as it presents itself.

The diarrhœal stage is, in most cases, manageable if treated promptly. The moment an individual becomes affected with diarrhœa, when cholera is prevalent, let him get into bed, and take every precaution to maintain the temperature of the surface of his body and extremities, by the application of warm blankets or other covering, bottles of hot water or heated bricks to his feet and hands, warm flannel swathes to the abdomen, and taking a small quantity of whatever domestic stimulant may be at hand, such as punch made with brandy or whisky, warm negus, or mulled port wine. Let him send at once for medical aid to the nearest depot, or to his medical attendant, recollecting that every moment's delay is injurious. As a large proportion of cases occurs at night, to avoid delay we should advise all families to be provided with medicine to meet the diarrhœal stage of the disease; and as such a medicine should be one that will not injure by keeping, it should be prepared and kept in a dry form.

The Committee advise that the following medicine be kept in every house, to check looseness of the bowels in slight cases:—

No. 1. ℞.

Pulveris Cretæ Opiati, ʒij.
Divide in chartulas duodecim.

Signa "*No.* 1, *Astringent Powders.*"

One of these powders, mixed with one table-spoonful of warm milk, to be taken by an adult, and repeated after every evacuation, until the arrival of medical assistance.

If, however, the purging be *sudden* and *violent*, let one of the following pills be taken every half-hour, instead of the powder:—

No. 2. ℞.

Acetatis Plumbi, gr. xxiv.
Opii, gr. iij.
Fiat massa et divide in pilulas duodecim.

Signa, "*No.* 2, *Astringent Pills.*"

One to be taken every half-hour.

In cases of sudden sinking and prostration, a dessert-spoonful of either whisky or brandy, and a table-spoonful of water, may be taken every fifteen minutes, until the arrival of the physician. In cases of sickness of stomach, let a large mustard poultice be applied over the pit of the stomach, until it produces decided irritation. Rice milk or beef tea, with or without well-boiled rice, may be taken in small quantity in the diarrhœal stage.

It is not an uncommon error, and one that the members of the Committee have known prove fatal in former epidemics of cholera, for persons attacked with the preliminary diarrhœa to take castor oil, or saline and other aperient medicines. This must be most strictly avoided, as it is attended with the greatest danger; on the contrary, every effort should be made to check the tendency to diarrhœa.

Where diarrhœa occurs in young people, gradually diminishing doses of the *astringent powder* No. 1 may be administered; reducing the quantity prescribed to one-half for a child ten years of age; but for the diarrhœa of children under this age, the Committee would recommend, for a child a year old, the following powder after every liquid evacuation; taking care, at this age, not to repeat it oftener than every hour:—

No. 3. ℞.
Pulveris Cretæ Compositi, gr. ij.
Pulveris Cretæ Opiati, gr. i.

Misce, et signa, "*No.* 3, *Astringent Powders for Children.*"

Two of these powders combined may be given to a child from one to three years of age; three to a child from three to five years of age; in a child from five to ten this quantity might, in urgent cases, be repeated every half-hour until medical assistance is obtained. These should be given in a little milk.

Where there is urgent thirst, pure water, milk and water, or rice water, may be freely given as drink. If cold water appears to produce chill, then a small proportion of brandy may be mixed with it.

Although desirous to supply information which may be readily available by unprofessional persons, the Committee do not deem it expedient to embarrass the public mind with detailed directions for treatment when the disease is developed, or in the secondary fever, being fully convinced that in these stages prompt and experienced medical assistance is alone to be depended on as offering any chance of recovery. They shall, therefore, only at present observe, that in some cases the disease commences suddenly, with symptoms of great intensity, such as shiverings, coldness of the surface, great prostration of strength, cramps, with purging, or vomiting, or both. In such circumstances, while medical aid is sought for, let the patient be immediately put to bed in a well-heated apartment, heat be applied to the extremities by bottles of hot water, heated bricks, &c., while a large mustard poultice, or a piece of warm flannel moistened with oil of turpentine, is applied over the abdomen. At the

same time the limbs, both upper and lower, should be diligently rubbed under the bed-clothes with the naked hand or with a flannel; and if cramps be distressing, the limbs may be carefully bandaged with flannel. In the meantime any convenient stimulant, such as punch made with brandy, whiskey, or gin, in moderate quantities, or mulled port wine, may be taken.

The following mixture is recommended as a cordial stimulant that may be used under such circumstances:—

No. 4. ℞.

Tincturæ Cardamomi Compositæ, f℥ij.
Spiritus Ammoniæ Aromatici, f℥ij.
Syrupi Zingiberis, f℥j.

Misce. Signa, "*No.* 4, *Stimulant Mixture.*"

Two tea-spoonfuls to be mixed with four tea-spoonfuls of water, and taken every half-hour.

The patient should not be allowed to sit up, or assume the erect posture.

The Committee do not intend to dictate a specific line of treatment for the fully developed disease; yet as these directions may fall into the hands of persons in remote parts of the country, who may, *whilst the medical attendant is coming from a distance*, be obliged, by the attack assuming the alarming character just described, to adopt more energetic treatment, the Committee recommend, in addition to the measures directed in the preceding paragraph, that one of the following *stimulant pills* be given every half hour.

No. 5. ℞.

Camphoræ, gr. xij.
Spiritus Vini rectificati, min. iv.
His probé conterendo mixtis, adde
Calomelanos, gr. xij.
Opii, gr. ij.
Capsici pulverisati, gr. iij.
Confectionis Aromaticæ, gr. v.
Mucilaginis Gummi Acaciæ, q. s.
Fiat massa, et divide in pilulas duodecim.

Signa, "*No.* 5, *Stimulant Pills.*"

One of these pills to be taken every half-hour.

As a convenient summary of treatment, the Committee submit the following:—

In every case of illness, when cholera is epidemic, send at once for medical assistance. Until that is obtained, attend to the following direction:—

I.—*Treatment of Premonitory Purging* IN GROWN-UP PERSONS *until the Arrival of the Medical Attendant.*

1. Put the sick person to bed, and apply bottles of hot water to the feet and hands, until thoroughly warmed.

2. Give a warm drink, with a glass of whisky punch, or mulled port.

3. Give one of the *astringent powders*, No. 1, in warm milk, after each motion of the bowels.

4. If the purging be violent or sudden, give one of the *astringent pills*, No. 2, every half-hour.

5. If there be nausea or vomiting, apply a large mustard poultice over the stomach.

II.—*Treatment of Premonitory Purging in* Young Persons and Children, *until the Arrival of the Medical Attendant.*

1. Put the child into a warm bed, with bottles of hot water.

2. Give a warm drink, but not wine or spirits.

3. Give the child *the powders for children*, No. 3, in a little milk, as follows:—

For a child one year old, one powder every hour.

„ two to three years, *two powders together* every hour.

„ three to five years, *three powders together* every hour.

„ five to ten years, *three powders together* every half-hour.

III.—*Treatment of the Attack of Cholera* (known by Vomiting and Purging, great Weakness, Coldness, and Shivering), *until Arrival of the Medical Attendant.*

1. Put the person into a warm bed, and apply bottles of hot water to the surface.

2. Apply a large mustard poultice, or turpentine, over the stomach and belly.

3. Rub the legs and arms diligently under the bed-clothes.

4. Give a moderate quantity of hot punch, or mulled port wine.

5. Give one tea-spoonful of the *Stimulant Mixture*, No. 4, in four tea-spoonfuls of water, every half-hour.

6. In violent cases, give one of the *Stimulant Pills* every half-hour.

On some New Preparations of Iodine. By M. Debout, Editor of the Bulletin Général de Thérapeutique.

Iodureted Oil.—M. Berthé, a pharmacien in Paris, suggests the preparation of iodureted oil by heating in a water-bath 77 grains of iodine, and 32 ounces of oil of almonds. The oil becomes decolorized, and the iodine enters into such an intimate combination with it, that its presence is no longer indicated by starch. Thus prepared, the oil is perfectly transparent, inodorous, and free from the disagreeable taste of the iodureted oil obtained by means of aqueous vapour. It is not acid, but is capable of becoming so when brought into contact with water or steam. In addition to its free-

dom from unpleasant taste, it has an advantage over all the ioduretted oils hitherto known in the great facility with which it may be made. It is not, however, correct to say that this oil contains all the iodine employed in its preparation; for if it is easy to operate in an open flask, it is difficult to arrive at the same result in a closed one: to succeed, it is necessary to use an open vessel, and as the compounds which are formed when iodine acts on oil are numerous, there is at least one which becomes disengaged. Besides, it is not easy to understand that a body possessed of such energetic properties as iodine should dissolve and disappear in combining with the oil, without more or less materially modifying the latter.

The ioduretted oil prepared in an open vessel does not give rise to the characteristic blue compound when mixed with a little sulphuric acid and mucilage of starch; while that prepared in a closed vessel produces it very quickly, although the mixture may have been kept for more than twelve hours in a bath of boiling water. The oil made in a closed vessel becomes coloured on exposure to the air, while the other undergoes no change.

[Is it not, therefore, probable that the entire of the iodine is volatilized by the exposure to heat, and the resulting product is simply almond oil?—Ed.]

Iodo-phosphuretted Oil.—To prepare this M. Berthé dissolves phosphorus in a small quantity of oil, and adds this solution to the remainder of the oil at the same time as the iodine.

We see nothing very new in this mode of proceeding, for we cannot suppose that the phosphorus which we dissolve in a small quantity of oil should be capable of immediately forming an organic molecule similar to that contained in cod-liver oil.

When we wish to imitate a product formed under the influence of chemical affinities, which govern combination in organized bodies, we must place ourselves, as much as possible, under exceptional conditions, and endeavour to understand how the combination we desire to imitate may be produced.

When we desired to prepare ioduretted oil to replace, not cod-liver oil, but the ioduretted principle of the oil, we knew that the iodide of potassium was a very delicate test of the presence of an acid fat; we knew that iodine dissolved in oil lost its physical and chemical properties by entering into combination with the molecules of the oil; we supposed that the iodides which traversed the liver of the codfish might be decomposed, that the iodine which was set free, coming in contact with the fatty substance of the liver, or with the elements of this fatty substance, and being placed in a sphere of particular attraction, and under the influence of chemical re-actions modified by vital actions, would become one of the chief constituents of cod-liver oil, in the same manner as copper, sulphur, &c., enter into the molecules which constitute organized beings; and we thought that by adding sufficient iodine we should transform one part into hydriodic acid, while the other would enter, by substitution, into the de-hydrogenized molecule.

If it were possible to adopt this supposition of the practicability of iodizing oil, it would still appear difficult to believe that we shall succeed in phosphorizing an organic molecule by dissolving phosphorus in it.

Iodureted and Bromureted Butter.—A mixture of butter, iodide of potassium, bromide of potassium, and chloride of sodium, has also been proposed as a substitute for cod-liver oil, but this is certainly the least happy of all the propositions which have been made. We do not mean to say that this butter does not enjoy all the properties of an analeptic, and that it is not a powerful agent, by whose assistance we may struggle against the disorganizing action of tuberculous disease; but we affirm that it cannot be in any way considered as a succedaneum of cod-liver oil, for this oil contains neither iodide nor bromide.

We are still ignorant of the true active principle of cod-liver oil, nor do we know if its aromatic principle does not contribute much to its efficacy, and if it alone does not represent the agent which establishes, in certain cases, the equilibrium of the vital functions.

Iodureted Albumen.—M. Renault, a pharmacien at Paris, has suggested that cod-liver oil should be replaced by iodureted albumen, which he prepares in the following manner. Take of dry albumen of commerce, three ounces and a quarter; water, thirty-two ounces; alcoholic tincture of iodine, three ounces and a quarter; water six and a half ounces. Powder the albumen, macerate it for about twenty-four hours in cold water, that it may form a hydrate, and partly dissolve. Pour into the tincture the water, which ought to precipitate the iodine in a state of minute division; then, without having filtered the albuminous liquid, add to it, by small successive portions, and with agitation, the tincture diluted with water. Having done this, place the mixture in the water-bath, and keep it there constantly stirring, until after evaporation the residuum ceases to lose weight. Finally, pulverize it, and pass through a silken sieve.

When dried, and in powder, iodureted albumen is of a bright yellow colour, inodorous, having scarcely a taste of iodine, and wholly without action on decoction of starch. In water it swells and becomes opaque, like gum tragacanth, and separates into two portions, one soluble, the other insoluble.

Before obtaining M. Renault's formula, we had made some experiments on the action of iodine on albumen, and we found that by mixing one part of white of egg with three of water, and passing the albuminous solution without expression through a strainer, a liquid is produced which has the property of dissolving iodine with tolerable facility. Having discovered this property, we adopted the following formula: Take of the albuminous solution representing ten drachms and a scruple of liquid albumen, five ounces; iodine, twelve grains. The foregoing is rather less than one-third of a grain in fifteen grains of liquid albumen, or two grains and a third in the same quantity of the dry preparation. Put the iodine into a mortar, add a little albuminous water and triturate; pour the solution when it is deeply coloured into a flask, and continue to operate by small

quantities; stop the flask, allow the iodine and albumen to re-act on one another for twenty-four hours; warm the flask in the water-bath, constantly shaking until the albumen appears colourless. To finish this preparation, dry in a water-bath, powder, and put it into a bottle carefully corked.

When the iodurettted albuminous solution is left to itself, it gradually becomes decolorized, opaque, and acid; if by raising the temperature we favour the re-action, the hydriodic acid, which is formed in greater quantity, combines with the albumen, and precipitates it in the form of finely divided insoluble albumen.

We must not suppose that it is the heat which makes the soluble albumen pass to the insoluble state, for the re-action commences very quickly, and the temperature of the liquid contained in the flask does not pass 123° F. We have not repeated the experiment often enough to assert that a temperature of 120° would be sufficient to effect the combination, if we subsequently heated the iodurettted solution.

The conclusions we would draw from the foregoing facts are:—

The iodurettted oil of M. Berthé is preferable to any iodurettted oil hitherto known. The iodo-phosphurettted oil is useless. We may, if we wish to administer a mixture of this nature, prescribe iodurettted oil and phosphurettted oil, but we ought to be aware that we can never administer a phosphurettted compound analogous to that found in cod-liver oil. The iodurettted and bromurettted butter can neither replace the iodurettted oil nor cod-liver oil. The iodurettted albumen or hydriodate of albumen cannot be brought forward as a succedaneum of cod-liver oil, but it ought to be regarded as a new medicine, admitting of the free administration of a therapeutic agent of great value. In approving of its employment, we do not pronounce an opinion on the pharmaceutic preparations proposed by M. Renault, for we do not understand them; but we will say, that the form of chocolate tablets chosen by M. Soubeiran is preferable to any other preparation, and that a syrup of this albumen is quite inadmissible. We recommend M. Renault, who has made this discovery, to try the liquid albumen, and we are persuaded that he will be better pleased with its use in the proportionate quantities than with that of the dry albumen of commerce.—*Bulletin Général de Thérapeutique*, 30 August, 1853, p. 167.

[The foregoing remarks of Dr. Debout, on some of the many preparations and compounds recently proposed on the Continent as substitutes for cod-liver oil, we have thought worthy of translation; they prove, in a pharmaceutical point of view, the great difficulty of an inquiry now becoming, we might almost say, fashionable amongst medical men. As regards the therapeutical properties of cod-liver oil, we do not think it possible that they could be replaced by any compound, although we doubt not that a substitute more agreeable to the palate could easily be prepared; we might just as well expect similar results from the factitious as from the real mineral waters: in both cases nature's hand is alike superior to that of man.—Ed.]

On the Physiological Action of the Oxide of Zinc. By Dr. Michaelis.

The essay bearing the above title, which received a prize from the Faculty of Medicine of Tübingen, contains interesting data on the action of a remedy which practitioners prescribe frequently, but in a wholly empirical manner. The author commenced by searching for zinc in the products of secretion; for this purpose he instituted numerous experiments upon animals, and found the metal in the liver, in the bile, in the blood, in the urine, and sometimes in the kidneys, the lungs, the brain, the heart, and the spleen. He tried on himself the action of oxide of zinc, prepared both *viâ humida* and *viâ sicca*. Two grains of the former were first taken without any perceptible effect; when the dose was increased to three grains it produced a feeling of oppression at the epigastrium, and loss of appetite. A dose of four grains in the day gave rise at first to a sensation analogous to hunger, but afterwards excited uneasiness, nausea, and constipation; the following day it caused headach and bilious vomiting. Zinc prepared by calcination was taken in a much larger dose, without being followed by such marked effects. On the fourteenth day the quantity was increased to six grains: the author experienced only weakness, a little headach, and loss of appetite.

From these experiments it appears that the oxide of zinc, although insoluble in water, is absorbed; a fact which is easily explained by the presence in the stomach of lactic and hydrochloric acids. The metal appears in the bile before it can be discovered in the urine; twenty-four hours after the injection of a salt of zinc into the crural vein the bile exhibited evident traces of it.

Oxide of zinc does not produce modifications of any consequence except in the digestive and respiratory apparatus; strong doses cause erosions and ulcerations of the mucous membrane of the stomach, which are not of much importance, as they may heal although the use of the medicine be continued; but, on the other hand, they may pass into the chronic state. The rest of the alimentary tube is less liable to be affected, because the oxide of zinc is changed into an albuminate before it reaches it.

The alterations met with in the respiratory organs consist of granulations analogous to miliary tubercles.

The long-continued use of medium doses finally affects nutrition, and produces anemia and marasmus; the blood contains a quantity of fibrine evidently less than in the normal state. Thus the author found the mean amount of fibrine in the blood of dogs to be 1.92 in 1000, while after the use of the oxide of zinc this quantity was reduced to 0.99 or 1.00.

When cramps arise they should be attributed to the marasmus rather than to a special action of the zinc on the nervous system. In none of his observations has the author been able to discover a mode of action which can be regarded as specific. Zinc occupies

the mean between the heroic metallic poisons, and those which exercise but a feeble influence on the economy; the alterations it gives rise to are developed slowly, and are capable of cure. It is strictly allied to the class of medicines distinguished by the name of alteratives, in the sense, at least, of depriving the nutrient fluids of a portion of their plasticity.

The author concludes with some observations on the mode of administering flowers of zinc. He points out that, as oxide, it is an uncertain medicine, because we are ignorant how much of it will enter into combination with the acids of the digestive tube; it would be better to prescribe the acetate or the lactate of zinc. But if it be wished, notwithstanding, to exhibit it as oxide, the preference should be given to that prepared by precipitation. It is most important, when we wish to produce a more decided effect, instead of increasing the dose, to give it more frequently; we thus avoid the local actions. A milk regimen is advisable to promote the production of lactic acid, which favours the solution of the medicine. Lastly, magnesia, which is often prescribed with the oxide of zinc, ought to be entirely omitted, as it seizes on the acids of the stomach, and so retards, if it does not wholly prevent, the absorption of the metal. *Archiv. für physiolog. Heilkunde.—Gazzetta Medica Italiana Federativa Toscana*, 5 Luglio, 1853, p. 215.

[Oxide of zinc has latterly become so important a remedy, and is used so extensively for the treatment of epilepsy, that we have translated the above interesting observations of Dr. Michaelis on its physiological action. Its effects over nervous affections are decided, and no therapeutical agent has so frequently proved serviceable in our hands in idiopathic epilepsy, but its administration must be most carefully watched, its use being from time to time omitted; for, as many years since pointed out by Dr. Christison, if too long continued, it not unfrequently produces general marasmus, both bodily and mental, a fact fully confirmed by the above experiments.—Ed.]

Case of Chronic Hydrocephalus successfully treated by Compression of the Cranium. By Dr. Lund.

Led by the observations of Dr. Baader, published in the Journal für Kinderkrankheiten for 1848, Dr. Lund determined to take the first opportunity of employing compression in the treatment of chronic hydrocephalus. In January, 1849, he was consulted about a boy born in the beginning of March, 1848. For the first two months after birth nothing abnormal had been observed in the child, but from that period his development appeared to be arrested. His body and face became emaciated, while the circumference of the head increased. He was generally chilly, and suffered from cough, had an uncommonly great appetite, and frequently rejected what he had eaten; there were repeated attacks of diarrhœa, and he was very restless. Notwithstanding the means employed to combat

these symptoms, his condition became steadily worse. The extremities were more and more emaciated, the abdomen swelled, the spine was weak and curved, the cranium large, the fontanelles and sutures open, the bones of the head seemed loose, the forehead strongly arched and prominent, the eyes were sunken, and the face was, in proportion to the size of the whole head, remarkably small. On applying the stethoscope to the head, in the neighbourhood of the anterior fontanelle and of the sagittal suture, a blowing sound, isochronous with the pulse, and closely resembling the placental souffle, was heard. Dr. Baader, in his essay, lays great stress on this sound as a diagnostic sign of infantile chronic hydrocephalus. Compression of the child's head was employed in the mode recommended by this author. Strips of linen, about an inch and a half in breadth, and spread with soap plaster, were, after the hair had been shaved off, so applied that the middle part of all the strips, which covered the head in a radiating manner, rested on the vertex. During the application of the plasters the head was gently compressed. The ends of the long strips hung loose, and after a broad strip was applied over those round the base of the skull, or over the lowest part of the forehead, close over the ears, and under the occipital protuberance, the loose ends of the radiating strips were turned over and held *in situ* by means of another circular piece of plaster. The object in applying the circular pieces was partly to produce a direct compression round the head, and partly to increase, by their union with the other strips, the pressure of the latter. The plasters adhered firmly for three months, and were then only removed in consequence of the great growth of hair. The circumference of the head had now much diminished in proportion to the face and rest of the body, and the fontanelles and sutures had almost completely closed. The child's general condition, too, was considerably improved. Notwithstanding this, Dr. Lund considered it advisable to renew the application of plasters in the same manner as at first. These were removed in a little more than two months, when the shape and size of the head, as well as the general health of the child, were such as to render the continuance of compression unnecessary, a plan which besides could no longer have any effect, as the bones of the head had now become quite firm. The child's head still exhibits the effect of the treatment in the unusual form it has retained, the vertex being flattened, and the parietal tuberosities tolerably prominent. In reference to his bodily state, the boy may now be considered to be, for his age, well developed, healthy, and lively, and his mental powers are much awakened.

The successful result obtained in this instance does not appear striking when compared with Dr. Baader's statement of his experience; but, as in most works on the treatment of this disease compression is only superficially mentioned, and physicians in general do not seem to have much confidence in the plan, the present case, although standing alone, deserves attention. It is possible that the mode in which the compression is employed is the most important

item in influencing the result, and that in consequence of the want of success which has been obtained by it, the method has hitherto been little attended to. A circumstance may appear to throw some doubt on the correctness of the diagnosis in the case just described, namely, that while Baader assumes the cerebral murmur as a diagnostic sign of chronic hydrocephalus in infants, other authors entirely deny the existence of this sign. Thus Barthez and Rilliet, in their *Traité des Maladies des Enfans*, state that they never have observed the blowing sound first described by Dr. Fischer of Boston, in the brain of any patient labouring under acute or chronic hydrocephalus, and Barth and Roger allege the same. They observed this sound in a child in whom they had, on account of the great circumference of the head, assumed the existence of hydrocephalus, but after death they found that the diagnosis was incorrect, and that the brain was perfectly healthy. Notwithstanding that so great authorities give opinions adverse to the importance of the cerebral murmur as a diagnostic sign, Dr. Lund feels himself obliged, supported by the experience afforded by his case, in which the diagnosis may be considered established both with reference to the symptoms of the disease and to its results, to incline more to the opinion of the German than to that of the French writers, and consequently to consider himself justified in at least assuming, that when this physical sign is observed in the head of a sick child, the disease may be chronic hydrocephalus.—*Norsk Magazin for Lægevidenskaben*, Anden Række, Bind 6, p. 61.

On the Preparation of Solution of Perchloride of Iron. By M. Burin du Buisson, Pharmacien of Lyons.

Having in our Number for May last given a translation of M. Rayer's account of the method proposed by Dr. Pravaz for producing the instantaneous coagulation of blood in the arteries, and this method having, as appears from several communications since published in both the foreign and British medical periodicals, been extensively tried in the human subject, we think it well to bring before our readers the formula which M. Burin du Buisson, to whom the task of ascertaining the best mode of preparing the perchloride of iron was confided by M. Pravaz, has adopted, as that by which the salt can be had in a state of purity, and its watery solution procured at a maximum and uniform density. It is as follows:—

Take of perfectly green sulphate of iron of commerce, 32 ounces; water, 96 ounces; pure filings of iron, $3\frac{1}{4}$ ounces; sulphuric acid, by weight, half an ounce: introduce the entire into a matrass, or, better, into an enamelled iron vessel, digest on a sand bath until the disengagement of gas ceases; filter; add to the fluid 16 ounces of liquid hydro-sulphuric acid, and allow the mixture to stand for twelve hours; at the end of this time place the solution on the fire; boil for half an hour and filter. To the filtered liquid add $6\frac{1}{2}$ ounces

of pure and concentrated sulphuric acid; place the mixture in a porcelain capsule, or in an enamelled iron vessel, which must be only half filled; raise it to the boiling point, and add pure nitric acid in small portions, until its addition ceases to produce a disengagement of reddish fumes; then, withdrawing it from the fire, dilute the liquid with from 25 to 30 times its weight of cold water, and precipitate all the iron in the state of peroxide with a slight excess of water of ammonia; wash the precipitate repeatedly in distilled water, and, placing it in thin layers on linen, dry it by exposure to the air.

The dried and pulverized oxide is afterwards heated to redness in a wrought iron vessel, which, in order that the heat may not require to be too much elevated, should be wide and shallow; we now obtain the astringent *Crocus martis* of the shops, which, when it is thus prepared, is nothing but pure peroxide of iron.

The perchloride of iron is subsequently obtained in the following manner:—Take of peroxide of iron, prepared as above, 6½ ounces; colourless and pure hydrochloric acid, 32 ounces; allow them to stand in the cold for five or six hours, then place the vessel on a water bath at 212° F., allowing it to remain until the oxide is nearly completely dissolved; this part of the operation should be performed in a porcelain capsule of known weight; decant the liquid to separate the undissolved portion of oxide, and evaporate carefully over the water bath, and with constant stirring, to the consistence of a thick syrup, the weight of which is then to be ascertained; add a quantity of distilled water equal to half this weight; heat for a few seconds and throw the entire on a filter; wash the capsule and subsequently the filter with a quantity of water equal to the first, and to the former liquid add a quantity of the latter sufficient to furnish a homogeneous mixture of the density of from 4·35 to 4·4.

In proceeding thus a very limpid liquid is obtained, entirely pure, at the maximum of saturation, having only a slight acid reaction, and always uniform, keeping perfectly without the formation of any deposit, provided it be preserved in a well-stopped vessel. It is of a deep brown colour when seen by reflected, and of a greenish golden yellow when a thin layer is viewed by transmitted light.

Five or six drops of this liquid, mixed with the white of an egg diluted with six drachms of water, are sufficient to convert the entire in less than fifteen seconds into a mass which, when the vessel containing it is inverted, remains gelatinized at the bottom, and does not become detached until so long a time has elapsed that the water commences partially to separate like the serum of coagulated blood.

This preparation then combines all the conditions requisite to realize the hopes justly excited by the observations of Dr. Pravaz. —*Gazette des Hôpitaux*, 1853, p. 238.

On Chronic Excoriations of the Tongue in Children. By Frederic Betz, of Heilbronn, on the Neckar.

Professor Möller of Königsberg describes a chronic desquamative process of the tongue, which he had observed in six cases[a]. The patients were middle-aged females. The excoriations appeared in the form of irregular deep red spots, for the most part sharply circumscribed, either altogether stripped of epithelium or very thin over them, while the hyperemic and swollen papillæ projected somewhat beyond the level of the surrounding parts. No morbid secretion could be observed on these spots, nor did any deep ulceration take place. They existed chiefly on the borders and tip of the tongue, more frequently on their under surface, and on the inside of the lips, never on the posterior parts of the mouth. They occasioned a troublesome sensation of burning, gave the patients a disgust for food, deprived them of the sense of taste, and interfered with the free motions of the tongue.

Dr. Betz observed a very similar disease in five cases in children, which he does not wholly identify with that described by Professor Möller, but the points of difference do not appear to be great. Perhaps Professor Möller may bring forward further communications on the subject, when he shall have had opportunities of observing his form of disease in children. A red spot of roundish or oval form appears on the edge of the point of the tongue, but never on its middle line, nor on the base, and is surrounded by a well-defined, often slightly elevated redder margin. This red, sharply defined spot increases from the edge inwards, extending in a curve, and when it arises behind advancing towards the tip. Dr. Betz has only seen it on the back of the tongue; but he has observed the spots in three situations at the same time:—on the left half of the tip and on both margins of the body of the organ, the remainder of the tongue being covered with a whitish fur. The tongue is not swollen or harder in these spots, nor does any secretion or ulceration arise. The little patients made no complaint, nor did the disease appear to be an object for treatment. The morbid process consists in an exfoliation of the horny epithelium of the papillæ filiformes[b], splitting at its point into many thread-like processes,—a desquamation of the filamentary papillæ of the tongue. They consequently appear much lower on the red fleshy spot; even lower than the papillæ fringiformes. The spot so denuded is not painful to the touch. Each half of the tongue desquamates by itself; that is, the desquamation does not attack both halves at the same time, nor does it advance simultaneously on both. When the tongue has exfoliated, the process recommences after three, six, or eight days. I have watched these chronic excoriations during three years in a boy in whom they existed since an attack of jaundice, which occurred about four weeks after birth.

[a] Deutsche Klinik, No. 26.

[b] See Kölliker's Gewebelehre, 1852, p. 351.

The other patients were girls, the eldest of whom was eight years of age. In these children eczematous and impetiginous eruptions appeared from time to time on the face and on the head. As the disease occurs before dentition, a bad tooth cannot be regarded as its cause. Dr. Betz could not perceive any influence on the motion of the tongue or on the sense of taste. Since the desquamation of the epithelium is connected with a hyperemia of the filiform papillæ of the tongue, but without the occurrence of ulceration, the author would be inclined to substitute the designation "Pityriasis linguæ" for that of chronic excoriations.—*Journal für Kinderkrankheiten*, 1853, p. 190.

On a New Mode of performing the Operation of Tracheotomy; being a Memoir read to the Académie de Médecine by M. Chassaignac.

The principal source of difficulty in tracheotomy is the extreme mobility of the parts involved in the operation. It is therefore important to render the region, or at least the organ on which we operate, immovable. The condition of fixity ought, if possible, to be realized during the entire process, but at least at two periods of the operation which are of supreme importance: first, at the moment of opening the trachea; and secondly, at that of introducing the canula into the windpipe. During the incision of the trachea, the mobility of this tube exposes us to the danger:—1st, of missing it by the risk of the knife slipping on its surface; 2nd, of wounding the organs situated on its lateral portions; 3rd, of cutting completely through it and reaching the œsophagus; 4th, of opening the cartilaginous rings at the side; and 5th, of making the incision of the trachea too short or too large. A capital point in the operation consists in shortening as much as possible the interval between the opening of the trachea and the placing the canula *in situ.*

Tracheotomy is a difficult operation—very difficult sometimes in its most important part; for this must be said of every operation in which the essential point may fail without remarkable want of dexterity of the surgeon.

The difficulties which attend the second period of the operation, consisting of the introduction of the canula, are the following:—1st, difficulty in re-finding the tracheal incision in consequence of the effusion of blood and of the elastic action of the cartilages, which tends incessantly to bring the wound to a linear condition; 2nd, difficulty in maintaining the dilator in the wound of the trachea in consequence of retroversion of the cartilaginous half-rings, which easily allow it to escape; 3rd, difficulty arising from the wound being too small, or from the dilator itself occupying too much space; and 4th, slipping of the canula into the areolar tissue. In order to obviate the foregoing several inconveniences, I have had recourse to the following mode of operation, which consists of four distinct points:—1st, fixing of the cricoid cartilage; 2nd, incision of the trachea; 3rd, dilatation

of this incision; 4th, introduction of the canula. A word as to the instruments by means of which we accomplish these several objects.

1. *Grooved Tenaculum.*—This instrument is nothing else than a strong hook with a single curve, on the convexity of which we have, as in the anatomist's staff, a groove, intended to guide the point of the bistoury safely into the trachea. The importance I attach to this tenaculum is not exaggerated. Any mode of fixing the trachea is admissible, provided only that it be efficacious; while the idea of holding with the unaided fingers a mobile, elastic, rounded tube, surrounded by numerous muscles, is as easy to express as it is impossible to execute. This difficulty of fixing the trachea with the fingers has doubtless at all times excited the attention of observers. To mention only the attempts made in our own days on this subject, I will remind my readers that M. Bretonneau has recommended the use of acupuncture needles, curved near the points in the flame of a candle, and furnished at the shoulder with a little ball of sealing-wax. Liston, with the same object, employed a tenaculum with a fixed handle. He began by making a long incision in the skin, laid bare the trachea, fixed the tenaculum in it, and opened the windpipe from below upwards, contrary to the general usage. There is even this singularity, that Liston, turning his hook from below upwards, and also cutting in the same direction, did not derive the advantage from the hook of stretching the parts against the cutting of the bistoury, which remarkably facilitates the manipulation[a].

2. *Dilator of the Trachea.*—The essential condition of this instrument should be likewise to serve to hold the trachea firmly, at the same time that it dilates the wound made in it. The dilatation is really efficacious only so far as the trachea is rendered incapable of escaping from the action of the dilator, whatever be the movements to which there is a tendency. After many trials based upon the same principle—viz., bending the extremity of the instrument at a right angle—I have decided on a combination which has given very good results on the living subject, and consists in the articulated division of the two branches of the dilator, a mechanism which M. Mathieu has carried out with all the skill that could be wished.

3. *The Canula.*—On this instrument I have made but very secondary modifications:—1. Widening the mortice into which the tenon of the interior canula passes. 2. Making in the convexity of the exterior canula an oval opening, which admits, when the internal canula is removed and the orifice of the external canula is stopped, of the moment being observed at which the air freely traverses the upper opening of the larynx. 3. Widening the lateral openings intended for the string which goes round the neck.

I shall now proceed to point out how, with the assistance of these instruments, the several steps of the operation are performed.

[a] Operative Surgery, p. 325 to p. 331.

1st Step—Fixing the Grooved Tenaculum.—The modifications I have introduced into the operation of tracheotomy have sprung from an anatomical observation. The cricoid cartilage is at every age, and in both sexes, an index so certain that it may always be recognised through the skin in any subject on whom it is proposed to operate; but if the least doubt remains at the moment of fixing the tenaculum, a very trifling incision of the integuments will suffice to remove all uncertainty.

It will be recollected that the cricoid cartilage forms a complete ring, and is therefore the only part of the air-passage which constitutes a resisting point amidst parts so movable; so that if it be compressed it does not yield like the thyroid or the rings of the trachea, but it re-acts with all the elastic force of a cartilaginous circle.

To ask the operator, then, to fix the tenaculum on the inferior edge of the cricoid, either directly or by making a previous incision through the skin, is to require nothing which is not capable of very certain execution. If there were any doubt, it would be very quickly removed by carrying the finger up from the sternal bifurcation until it meets the first resisting point to be felt in the median line.

Suppose, then, that the windpipe is steadily fixed by means of the hook in the cricoid cartilage, what difficulty will there be, notwithstanding the apparent boldness of the manœuvre, in unhesitatingly plunging the bistoury into the trachea, using the groove presented by this new director as a guide? The three or four rings whose section is indispensable for the introduction of the canula are then to be divided with a single stroke. In the adult this section may be made without the probe-pointed bistoury, in the child it is absolutely necessary to employ the latter. So soon as the section of the rings has been effected, the dilator is introduced; and on account of the smallness of its point it is easily insinuated between the lips of the wound, and likewise finds a safe conductor in the groove of the hook: immediately it is introduced it allows of the easy placing of the canula. To the objection which might be made to the simultaneous section of the integuments and of the trachea, as exposing the patient to the danger of the blood penetrating into the bronchi, I reply—that the best answer to this objection is to be found in the rapidity with which the canula may by this proceeding be placed *in situ*, which is the surest means of terminating the kind of hemorrhage observed in such cases.

The following are the conclusions to be deduced from what has been said:—

1. The subcutaneous projection of the cricoid cartilage is the surest guide which operative surgery possesses for the introduction of a grooved tenaculum through the skin.

2. In the vast majority of subjects we may insert a tenaculum under the cricoid cartilage without previous incision, guide a sharp

bistoury on this grooved tenaculum, and with a single stroke divide the integuments and the trachea.

3. It is absolutely necessary that the dilators of the trachea should be so arranged as to prevent their slipping out during the operation. The elbowed dilators appear to have this advantage.—*Revue Médico-Chirurgicale de Paris*, August, 1853, p. 80.

[The foregoing paper of M. Chaissaignac is followed by one by M. Raimbert, in which, after alluding to the employment of a hook for fixing the air-passage in tracheotomy, he asks—"Is this proceeding new? I thought so for a moment; for none of the treatises on operative surgery make mention of it, nor is it alluded to in any work on croup or tracheotomy. However, knowing how few new things there are under the sun, and wishing to render to every one his due, I searched all the medical journals within my reach, and found in the 'Journal des Connaissances Médico-Chirurgicales' for 1841, p. 112, an article by M. Leclerc, Physician-in-Chief to the Hospital of Tours, on an operation of tracheotomy performed in a case of foreign body in the larynx, in which are the following lines:—'I entreated M. Villaret to draw the trachea with a simple hook;' and in a note—'M. Bretonneau was the first to make use of this instrument, to approximate the trachea to the lips of the wound, to fix it, and to facilitate the section of the cartilaginous rings.'"

The practice of fixing and drawing forward the trachea in this operation by means of a hook has been long adopted in the Dublin hospitals. Thus, in the Number of the former series of this Journal for November, 1832, Mr. Carmichael gives a case operated on by him, and reported by Dr. Robert Adams, in which particular stress is laid on this point,—the words "a double hook was struck into the trachea" being printed in italics. Another case, in which Dr. Adams operated on the 2nd March, 1833, and in which the double hook was also used, is given by Mr. Porter[a]. This modification of the operation of tracheotomy is also described in Cooper's Surgical Dictionary, where the credit of the suggestion is given to Sir James Murray, of Dublin[b], as having been originally published by him in his Thesis for the degree of Doctor of Medicine in the University of Edinburgh in 1827. Lastly, in the fourth volume of our former series, in the Number for September, 1833, Sir James Murray republished the portion of his Thesis containing the description of the operation[c]. It is thus evident that this mode of performing the operation of tracheotomy, so far as the hook is concerned, was in use in Dublin many years before it was adopted by the French surgeons.—Ed.]

[a] Observations on the Surgical Pathology of the Larynx and Trachea, by W. H. Porter. 1837. Page 189.

[b] Cooper's Surgical Dictionary, Seventh Edition, p. 1267.

[c] Page 107.

On the Employment of the Perchloride of Iron in the Treatment of Aneurisms. By M. Malgaigne.

Surgeons have long been anxious to realize the idea of curing aneurisms without having recourse to the knife, and in later times especially, the discovery of the coagulating effect exercised by certain physical and chemical agents on the blood, seemed greatly to advance the solution of the problem. Thus, about twenty years ago, Pravaz proposed the use of galvano-puncture, which has lately been tried on the living subject by M. Petrequin. The occasional success attained by this method appeared to the inventor himself to counterbalance but feebly the cases of gangrene, &c., which had been reported. The employment of the plan was besides attended with many difficulties, as he acknowledges in a letter addressed on the 3rd of last May to the *Société de Chirurgie.* This gave rise to new researches. It was in the course of these experiments that Pravaz, remarking how readily blood solidified in contact with perchloride of iron, thought he had at last found what had been so long and earnestly sought. Trials made on sheep and horses proved that with but a few drops a fine clot could be obtained, sufficiently resistant to obliterate the caliber of the vessel into which the ferruginous compound had been injected.

Several operations have already been performed with this agent on the human subject by surgeons in the country, and we are told with success. However, a vigorous investigation of the facts to which I allude proves, that they are not as favourable as has been reported. In the first instance, in one case the disease most probably was not an aneurism, but an erectile tumour, and even this was not of any great size. In others gangrene or suppuration has taken place. There was, therefore, little cause for congratulation. In Paris the results were still less favourable.

Thus M. Velpeau, in a patient labouring under traumatic aneurism at the bend of the elbow, at first injected some drops of perchloride without any beneficial result; he tried it again; inflammatory symptoms set in, and it became necessary to tie the artery. A case still more unfortunate occurred in the Hôpital Saint Louis.

A young man, aged 25, likewise suffering from a traumatic aneurism at the bend of the elbow, was operated on in Paris on the 3rd of May last. The trocar of M. Pravaz, made by M. Charrière, was used, filled with a solution of equal parts of water and perchloride of iron. The trocar easily penetrated the tumour. On withdrawing the stilet a jet of black blood escaped by the canula, showing that it had reached the centre of the sac. The syringe was immediately adapted, and five half turns were given to the screw of the piston, each of which should throw in a drop of medium size. As the tumour was still pulsating, as well as the radial artery, five additional drops were thrown in by a similar manœuvre. At this moment the patient, who had been silent hitherto, complained of a dreadful pain through-

out the whole arm. The tumour ceased to pulsate, the brachial artery itself was quiescent as far as three finger-breadths above the tumour. The canula was withdrawn, a little blood flowed from the puncture; a drop of perchloride instantaneously arrested it, and transformed what had run down the arm into a clot but half the width of the stream from which it had formed.

Ten seconds after, the artery did not pulsate at four finger-breadths above the tumour. The radial pulse was no longer perceptible, the hand was pale, cold, insensible to the touch and to pricking, and yet the patient cried out when his fingers were squeezed; and, moreover, the internal pain constantly increased. The fore-arm was enveloped in wadding; the hand by degrees regained its heat, but became swollen, and assumed a purple colour.

The night was wretched. By no change of position were the pains relieved; shiverings came on every moment in the midst of febrile heat. The patient then applied for admission into hospital. He was taken into the Hôpital Saint Louis on the 4th of May, and placed under my care. It seemed that at that time gangrene had only attacked the thumb.

At the evening visit the internes found the hand black, icy cold, and insensible. The gangrene had ascended on the inner side of the fore-arm, as far as the bend of the elbow, not so high on the outside. The arm was very much swollen, red, and hot, and there appeared to be fluctuation all about the elbow. In ignorance of the history of the case, and in the belief that they had to deal with a diffuse inflammation, two incisions were made in the arm, which gave exit to a quantity of thick, black, and conglomerated blood.

On visiting the hospital on the 5th of May I found the gangrene occupying almost the entire fore-arm, and not yet arrested. On the 6th and 7th it still made some progress. The patient raved during the night and had diarrhœa. On the 9th, the diarrhœa having increased, I ordered three ounces of tea punch; the diarrhœa stopped. The gangrene seemed to be limited, and the line of demarcation began to appear.

The delirium having ceased, the patient was informed of the necessity of amputation, but at first decidedly refused to submit to the operation; but on the 12th, feeling the effects of the suppuration and gangrene, he asked for it. I had only to cut a few still living shreds to separate the fore-arm from the elbow-joint. The portion of the artery on which the aneurism had been, was imbedded in a mass of dead areolar tissue, and presented merely a *detritus* in which nothing could be distinguished.

To be brief, symptoms of purulent infection declared themselves, and the patient sank in a few days.

It may, perhaps, be said, that in these two instances the quantity of perchloride injected was too great; this was not the case, however, in that which I shall now recount.

The patient is a man at present under my care in the Salle Saint Augustin, where he has lain since the 30th of July.

This man, aged 29, is employed in a manufactory of Seltzer water, where his occupation is corking the bottles. This operation is rendered less dangerous by means of a safety apparatus; but careless, as most workmen employed in dangerous or unhealthy labours are, he laid the apparatus aside. Now, it happened that in driving in a cork the gas disengaged by the shock given to the bottle burst the latter, and a fragment of glass penetrated the front of the fore-arm, towards the inner part of the bend of the elbow. A jet of blood immediately escaped, and the sufferer perceived a numbness in the lower part of the wounded limb, with loss of sensibility of the first three fingers of the hand, and of half of the ring finger, and loss of movement of several muscles of the fore-arm. On a level with the wound there was a small tumour, pulsating isochronously with the heart. There could be no doubt as to the diagnosis; there was lesion of the median nerve and traumatic aneurism.

I could not here try the forced flexion of the fore-arm on the arm, which may be useful in aneurisms the result of accidents in venesection, for in this case the tumour was not seated exactly at the bend of the elbow. I tried compression, but it was so painful that I was obliged to give it up. Ought I immediately to try ligature? Serious considerations were opposed to this course. The paralysis of sensation and motion proved that the median nerve was wounded; innervation was at least suspended. To this first cause of gangrene ought we add ligature, which would have deprived the limb of the influx of blood? The danger was too evident to expose ourselves to it. I determined to wait. Cataplasms were applied. The violence of the pain obliged me, several times, to have recourse to the local use of opium. Finally the aneurism, at first diffuse, became encysted and circumscribed. I thought I might again try compression, but the same reason again obliged me to give it up.

I shall here make a brief digression on the employment of compression in aneurisms. This mode of treatment is sanctioned by some, rejected by others. Which party is right? Both. The fact is, compression, according to circumstances, is either an excellent or a bad method of treatment. It is therefore necessary to distinguish the conditions which demand its employment from those which contra-indicate it.

First, we must bear in mind the division of aneurisms into spontaneous and traumatic, for it is this which must guide us. In spontaneous aneurisms, ninety-nine times in a hundred the two inner coats are ruptured, and the dilatation takes place at the expense of the external coat; the former two then constitute between the latter and the caliber of the vessel a sort of floating diaphragm, having an opening with fringed edges, indicative of the rupture. To cure the aneurism it will be necessary either to close this opening, which allows the blood to pass, the continual shock of the latter tending to enlarge the sac, or to obliterate the artery. To compress the artery so that its opposite walls may contract adhesive inflammation, it must be superficial and situated over a bone, conditions which are

rarely united in arteries of a certain caliber, in which spontaneous aneurisms usually arise. Shall we be more fortunate in acting on the orifice of the diaphragm? But we know that in these aneurisms the internal coats are altered, and their feeble vitality is destroyed when they are separated from their envelope, the basis in which the vessels and nerves ramify. We cannot then hope to obtain the reunion of parts thus broken and separated. In addition, as, in spite of the compression, the blood still passes between the tunics, through the solution of continuity, it detaches and dissects, as we say, the areolar tissue, enlarges the sac, raises it above the original lesion, so as to lead the surgeon into error, and to make him think that the aneurism is situated higher up than it really is.

It is thus that we have seen an aneurism of the femoral artery treated by compression ascend into the true pelvis, leading to the diagnosis of a dilatation of the trunk of the iliac, in consequence of which the aorta has been tied. The result was what might be expected,—the patient died, and on the *post-mortem*, a dissecting aneurism of the femoral artery was found. *Conclusion:*—In spontaneous aneurisms compression is not advisable.

Next, as to traumatic aneurism. In this case the artery has generally been pierced by a narrow opening; the three coats have remained in contact, and the cicatrix has formed circularly between the edges of the opening; the latter continues, and gives passage to the blood, which forms a sac at the expense of the neighbouring areolar tissue. There is, therefore, no detachment, but merely a small communicating orifice between the vessel and the accidental sac.

Now, if we can prevent the blood escaping, we may hope that a clot will form between the lips of the opening, and that adhesions solid enough to stop the latter may take place. In this case, then, we may try compression.

To return to our patient; time passed away; sensation and the power of motion returned; innervation was re-established; we decided on operating.

Instructed by the serious occurrence which had taken place under my eyes, and which I have just related, I resolved to establish compression below and above the tumour with a double intention: below, to prevent the injected matter being drawn with the blood into the lower divisions of the artery; above, to prevent the agitation of the blood by the impulse of the wave coming from the heart from impeding the coagulation. Having taken these precautions, I plunged a very fine trocar, to which M. Charrière's syringe, with screw piston, could be adapted, into the tumour. Having withdrawn the stilet, I moved the canula about in different directions; it appeared to me that I was in a cavity, but the blood did not come out. I then withdrew it and again re-introduced it, then some drops of purple blood flowed out; it became evident that I was in the centre of a softish and recent clot, the coagulation of which I might accomplish. I then adapted the syringe, and moving the

piston, I injected five drops of perchloride, or rather four and a half drops, for we may suppose that half a drop was employed in moistening the canula. The perchloride used had been very well prepared. A minute portion put in contact with a small quantity of blood at the moment it flowed from the latter puncture transformed the fluid into a blackish magma. However, this inspired me with but moderate confidence in the operation I had just tried, for I asked myself what would become of such a magma produced in the centre of the aneurismal tumour.

However that may be, the compression having been discontinued, we found that there was no longer any pulsation in the radial artery; but during the day this returned. It is then most probable that small clots had formed, which were soon carried away; and perhaps we were wrong to discontinue the compression so soon. The small punctures had healed with great facility; I therefore thought my patient safe from any untoward consequence, when, on the fourth or fifth day after the operation, a very violent pain set in in the cyst. At first view this pain was not alarming, for the inflammation it indicated might lead to the cure of the aneurism.

But, in three days after, the patient's sufferings were extreme; the sac had undergone a very considerable enlargement, and a blackish spot had appeared on a point of the tumour. All this made me apprehend the rupture of the sac. There was no time for hesitation; the artery must be tied. The inflammatory congestion, which reached a considerable height on the arm, rendered the operation difficult enough; however, the artery was seized and tied. Several days have passed since the operation, and gangrene has not shown itself; the pulsation of the radial artery has not returned.

In the greater number of cases, when the disease is recent, a ligature above the sac is sufficient to extinguish its pulsations; but when the aneurism is of long standing there is reason to fear that a collateral circulation may be developed, and that the blood, returning into the tumour by the lower end, should oblige us to have recourse to ligature below. One circumstance which favours the enlargement of small vessels, and the prompt formation of a collateral circulation, is irritation; now, in my patient this condition having appeared in a great degree, I was led to fear the occurrence I allude to; if such a thing should happen our course is plain: we must open the sac and look for the lower end of it. Perhaps nature will partly and spontaneously accomplish what the surgeon requires: what I mean is, that perhaps the sac will break to give exit to the magma produced by the perchloride of iron; we must then watch the patient very closely.

Undoubtedly, in the case I have just related, all precautions had been accurately taken to insure success; compression above and below the tumour, the injection of four and a half drops only; and still a violent inflammation attacked the tumour: we have been obliged to have recourse to the ligature. I have therefore come to a

decided conclusion on this subject: I formally reject the employment of the perchloride of iron in the treatment of aneurisms.—*Gazette des Hopitaux*, 11th October, 1853, page 484.

[In the preceding observations we have a discussion on the subject of the treatment of aneurism by compression, but the author speaks rather vaguely as to the mode in which compression is to be made,—whether it is to be applied to the tumour which constitutes the aneurism, or to the artery leading to it. Indeed, we might infer that it is to the artery itself he supposes the compression applied, because he says, that "to compress the artery so that its opposite walls may contract adhesive inflammation, it must be superficial, and situated over a bone," forgetting that experience has proved, that by varying the point of compression of the artery which leads to the aneurismal sac the most successful mode of making compression of the vessel will be obtained, because it fatigues the patient less, and the counter-resistance of a bone behind the artery does not constitute a necessary element in this mode of treatment[a].

In all cases the indication seems to be to produce a coagulation of the blood in the sac, and in this country methodically and well applied compression on varied points of the line of the artery leading to the aneurismal tumour has been found an eminently successful mode of treatment, whether applied to traumatic or to spontaneous aneurisms. Should this simple method fail, we still have in reserve the operation of applying a ligature to the exposed artery. As to the method of producing coagulation of the blood in the aneurismal sac by galvano-puncture, or the more modern chemical proposal of injecting, through the coats of the vessel, some drops of the perchloride of iron, if reason did not at first sight condemn such a proceeding, the facts adduced by M. Malgaigne will convince surgeons how much more safely the indication of producing coagulation of the blood in the sac is fulfilled by means of the "Dublin operation," as it is now termed! We have thought it well, however, to lay the entire question before our readers, with which view we have translated the paper of Dr. Pravaz in our last volume, and those of MM. Burin du Buisson and Malgaigne in our present.—Ed.]

[a] See the several papers in previous volumes of our Journal on the treatment of aneurism by compression.

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